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**CHILDREN AND PRODUCT PLACEMENT:
DO AGE, INVOLVEMENT, AND INTERACTION
AFFECT BRAND MEMORY AND CHOICE?**

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ABSTRACT

CHILDREN AND PRODUCT PLACEMENT: DO AGE, INVOLVEMENT, AND INTERACTION AFFECT BRAND MEMORY AND CHOICE?

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In consumer society, children are seen as a target audience by advertisers. Product placements have shown an increase in child-oriented animation movies, series, and programs. The current thesis study aimed to investigate the effects of product placement on explicit memory and choice behavior from the perspective of the cognitive psychological dimension, contrary to the literature dominated by advertising and marketing research. In line with this purpose, three experimental studies were conducted individually with 472 preschoolers and primary school students in İzmir, Turkey. In the first experiment with the preschoolers, an informative and entertaining video with the *Dalin* logo placement was used as the stimulus to investigate the effects of age, perceptual load, and cognitive load on recognition memory and product choice. The findings revealed that only age was a significant predictor of the recognition test. The probability of recognition of the placed brand in the older age group was higher than in the younger age group. In the second experiment, an animated movie, *The Smurfs*, with product placements of *M&M* and *Sony* brands, was used for primary school students to explore the involvement effect on brand recall and choice. Results showed that the brand recall probability of the high involvement group exposed to the *M&M* product placement was higher than the low involvement group exposed to the *Sony* product placement. In the last experiment, a digital platform series, *Stranger Things*, with the product placements of the *Coca-Cola* brand, was used for primary school students to examine the effect of character product interaction (CPI) on brand recall and recognition. The brand placement recognition probability of the interaction condition group was higher than the no-interaction condition group. The results were discussed in detail, the limitations of the current study and suggestions for future studies were stated.

Keywords: product placement, children, perceptual load, cognitive load, product involvement, character product interaction, recognition, recall, memory, product choice



ÖZ

ÇOCUKLAR VE ÜRÜN YERLEŞTİRME: YAŞ, İLGİLİLİK VE ETKİLEŞİM MARKA HAFIZASI VE SEÇİMİNİ ETKİLER Mİ?

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Günümüz tüketim toplumunda çocuklar reklamcıların hedef kitlesi olmuştur. Ürün yerleştirme çocuklara yönelik animasyon filmlerinde, dizilerde ve programlarda artış göstermiştir. Mevcut tez çalışması, reklam ve pazarlama araştırmalarının yaygın olduğu literatürün aksine, ürün yerleştirmenin açık bellek ve seçim davranışı üzerindeki etkilerini bilişsel psikoloji boyutundan araştırmayı amaçlamıştır. Bu amaç doğrultusunda İzmir ilinde 472 okul öncesi ve ilkokul öğrencisi ile bireysel olarak üç deneysel çalışma yapılmıştır. Okul öncesi çocuklarla yapılan ilk deneyde, yaş, algısal yük ve bilişsel yükün tanıma belleği ve ürün seçimi üzerindeki etkilerini araştırmak için uyaran olarak *Dalin* logosunun yer aldığı bilgilendirici ve eğlenceli bir video kullanılmıştır. Bulgular, yalnızca yaşın tanıma testinin önemli bir yordayıcı değişkeni olduğunu ortaya koymuştur. Yerleştirilen markanın büyük yaş grubunda tanınma olasılığı, küçük yaş grubuna göre daha yüksek çıkmıştır. İkinci deneyde, *M&M* ve *Sony* markalarının ürün yerleştirmelerini içeren animasyon filmi *Şirinler*, ilkokul öğrencilerinin marka hatırlama ve seçimi üzerindeki ilgililik etkisini araştırmak için kullanılmıştır. Sonuçlar, *M&M* ürün yerleştirmesine maruz kalan ilgili grubun yerleştirilen markayı hatırlama olasılığının, *Sony* ürün yerleştirmesine maruz kalan ilgisiz gruptan daha yüksek olduğunu göstermiştir. Son deneyde, ilköğretim öğrencileri ile karakter ürün etkileşiminin (CPI) marka hatırlama ve tanıma üzerindeki etkisini incelemek için uyaran olarak *Coca-Cola* markasının ürün yerleştirmelerini içeren dijital platform dizisi *Stranger Things* kullanılmıştır. Etkileşimin olduğu koşuldaki grubun marka yerleşimini tanıma olasılığı, etkileşimin olmadığı koşuldaki gruba kıyasla daha yüksek çıkmıştır. Sonuçlar detaylı olarak tartışılmış, mevcut çalışmanın sınırlılıkları ve gelecek çalışmalar için öneriler belirtilmiştir.

Anahtar Kelimeler: ürün yerleřtirme, çocuklar, algısal yük, bilişsel yük, ürün ilgilenimi, karakter ürün etkileşimi, tanıma, hatırlama, hafıza, ürün seçimi



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Ayça Paksoy
İzmir, 2022

TEXT OF OATH

I declare and honestly confirm that my study, titled “CHILDREN AND PRODUCT PLACEMENT: DO AGE, INVOLVEMENT, AND INTERACTION AFFECT BRAND MEMORY AND CHOICE?” and presented as a Master’s Thesis, has been written without applying to any assistance inconsistent with scientific ethics and traditions. I declare, to the best of my knowledge and belief, that all content and ideas drawn directly or indirectly from external sources are indicated in the text and listed in the list of references.

Ayça Paksoy
August 2022

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ABBREVIATIONS

COVID-19 Coronavirus Disease

CPI Character Product Interaction

TÜİK Türkiye İstatistik Kurumu

VR Virtual Reality



CHAPTER 1

INTRODUCTION

Children born into the age of visual communication and digital media have become the target audience of the advertising industry in time (Calvert, 2008). Considering the increasing media usage habits of children for many reasons, such as the transition to distance education due to the COVID-19 pandemic, children's relations with digital media have come to the fore again in many dimensions (Kaya et al., 2022; Montag & Elhai, 2020).

It has been a matter of debate for decades that children are more defenseless in making sense of the persuasive messages of advertisements due to their limited cognitive capacities (Kunkel et al., 2004). Due to the inconspicuous nature of product placement, the blurring of the distinction between entertainment content and marketing content brings the idea that children are more vulnerable when exposed to product placement than in traditional advertising (Hang & Auty, 2011).

Although decades-long debates over whether it is ethical, product placement, as one of the most effective tools of stealth marketing, has become prevalent in the entertainment content for children-oriented such as animation films and video games (Beaufort, 2018; Martí-Parreño et al., 2017).

The present thesis aims to bring a multidisciplinary interpretation to the studies in the literature that approach product placements from a single perspective, marketing or advertising (Hudson & Elliott, 2013; Kamleitner & Khair Jyote, 2013; Yoon et al., 2011). The primary goal of the thesis is to determine whether the brands that are subtly placed in entertainment content had an effect on children's visual memory or not and which predictors can explain this effect.

In line with these purposes, three experimental studies were carried out with children in the present thesis. The first experiment focuses on whether pre-schoolers between 3 and 6 recognize the brand logo placement in the audio-visual stimulus in the recognition memory test and whether they choose the product belonging to that brand

in the product choice task.

The second study focuses on the *product involvement* concept. It is hypothesized that child-oriented and adult-oriented brands placed in the entertainment content would be processed differently in children's visual memory.

The third experiment focuses on the effect of interaction between product and character on recognition and recall memory. The *character product interaction (CPI)* independent variable has been studied in the context of *Social Learning Theory* (Bandura & Walters, 1977).

The current thesis work analyses the concept of product placement comprehensively along developmental periods from early childhood to middle and late childhood. This dissertation can help brands whose target audience is children to consider which variables should be attended to when placing their products in the movies and series. It is expected that the study will also contribute to media psychology studies

CHAPTER 2

LITERATURE REVIEW

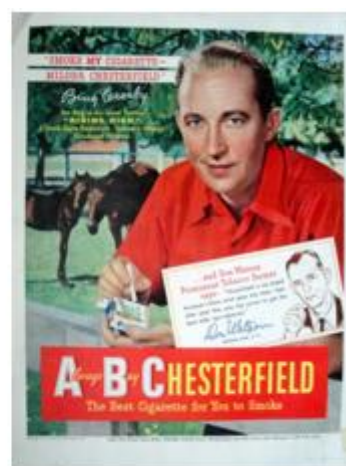
2.1. Concept of Product Placement

According to a definition provided by Balasubramanian (1994), *product placement* is a stealth marketing technique that consists of a persuasive and paid message deliberately embedded in entertainment content to increase purchasing behavior in the audience.

In the 1950s, with the introduction of the television into homes, a television show called by name “*The Colgate Comedy Hour*” was broadcast (see Figure 2.1. (a)) (Hudson & Elliott, 2013). *Colgate*, an American oral care brand, paid to be in the title of this television show that is at the center of attention of its target audience (Hudson & Elliott, 2013). In the same years, to spread the propaganda campaign that smoking is beneficial for health, a radio star of the time, Bing Crosby, mentioned in his radio show the cigarette brand *Chesterfield* (see Figure 2.1. (b)) (Hudson & Elliott, 2013). These are considered the first examples of *product placement* in marketing literature (Hudson & Elliott, 2013).



(a)



(b)

Figure 2.1. First Examples of Product Placement in (a) Television and (b) Radio Shows

In the later years, *Reese's Pieces* branded candy in *E.T.*, a 1982 American science fiction film, was accepted as a well-known example of product placement (see Figure 2.2) (Calvert, 2008). After the movie was released, *Reese's Pieces* achieved a 66 percent increase in product sales (Calvert, 2008). As another classic example, *Marlboro* and *Coca-Cola* brands were in the fight scenes of the 1980 movie *Superman 2* (Hudson et al., 2008). After the movie “*The Chronicles of Narnia: The Lion, the Witch and the Wardrobe*” was released in the UK in 2005, the sales of the Turkish delight brand, which was in the movie as product placement, increased by 200% (Sariyer & Ayar, 2013).

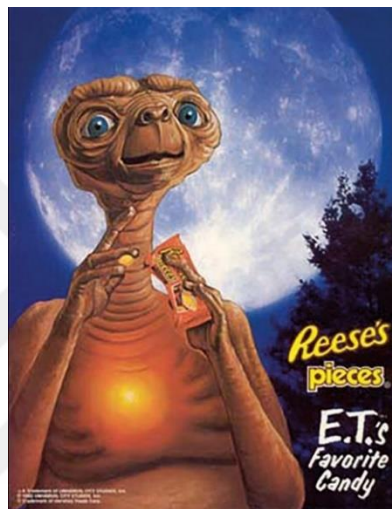


Figure 2.2. Product Placement Example of *Reese's Pieces* Brand in *E.T* Movie

The product placement technique, which started to become a trend in the 1980s, continues to its existence today.

2.2. The Differences Between Advertisement and Product Placement

Advertisers today have allocated substantial amounts of funds from their budgets to product placements considering the fact that product placements are remembered four times more than traditional advertisements (Hudson & Elliott, 2013). So, what creates this difference in recall rate, which is one of the indicators of cognitive effectiveness, between advertising and product placement?

Product placement, as a non-traditional technique, is different from the advertisement in some respects (Yang & Roskos-Ewoldsen, 2007). In product placements, viewers have difficulty noticing the placed brand; because of embedded in program content by nature (Uribe & Fuentes-García, 2017). The viewers pay particular attention to

entertainment content which are movies, television programs, or video games; therefore, they leave limited cognitive resources for understanding the commercial message (Uribe & Fuentes-García, 2017). On the other hand, in the advertisement, viewers possess enough cues to comprehend the marketing purpose (Uribe & Fuentes-García, 2017). When we consider the situation in terms of ethics, it might be possible to say that advertising is a fairer method than product placement (Charry, 2014).

Additionally, while the ad allows the viewer to switch channels or leave the screen, this is not possible due to the embedded nature of product placement (Sarıyer & Ayar, 2013; Yang & Roskos-Ewoldsen, 2007). The sudden interruption of the most exciting part of the watched series or television program gives cause for a negative attitude towards the advertisements in the audience (Gunawardena & Waiguny, 2014). This negative attitude toward advertisements is reflected in the brand (Gunawardena & Waiguny, 2014). On the contrary, the product placement is perceived more positively by the audience (Hudson & Elliott, 2013) as it boosts the sense of the reality of the placed story (Sarıyer & Ayar, 2013; Yang & Roskos-Ewoldsen, 2007). While advertisements are removed from broadcasting after a certain period, product placements meet with the audience again at every screening (Sarıyer & Ayar, 2013; Yang & Roskos-Ewoldsen, 2007). So, it can be said that product placements are long-lived than advertisements (Sarıyer & Ayar, 2013; Yang & Roskos-Ewoldsen, 2007). Moreover, with the release of successful movies in the international arena, brands can open their doors to the foreign market via product placement strategy (Sarıyer & Ayar, 2013). The implicit endorsement of the main character in the product placement and the singer or actress/actor in the advertisement is the common feature of both.

Although product placements are commonly used in the advertising sector, the underlying mechanism is different from the ads' (Matthes & Naderer, 2015). Advertisements' intentions are more obvious than the product placements' intentions (Matthes & Naderer, 2015). The phrase 'Trojan Horse' was used in Matthes and Naderer's (2015) study to describe the latent functioning of product placement as shaping the viewers' choosing behaviors without their consciousness. Hence, their effects of them on viewers are different from each other (Matthes & Naderer, 2015).

In Uribe and Fuentes-García (2017)'s investigation on children and adolescent samples in Chile, they compared the comprehension levels of advertising with product placements. Data was gathered from a broader age range by comparison with most

studies in the field. Participants were from 9, 12, and 15 age groups. In their comprehensive examination, Uribe and Fuentes-García (2017) were able to show that children have a more sophisticated understanding of advertising than product placement. Furthermore, children who were 15 years old were barely close to the basic persuasive understanding level of the product placement. On the other hand, the same age group was more superior level to comprehend the persuasive purpose of the advertising in comparison with non-traditional technique. Another important finding was that the starting levels of understanding these marketing techniques are different. In other words, while children have improved with age from basic to complex persuasive level in comprehension of advertising, the children have progressed with age from informational understanding level to basic persuasive level in comprehension of product placement (Uribe & Fuentes-García, 2017).

2.3. Children as a Target Audience of the Advertising Sector

How can it be possible that today's advertising industry can see children as a target audience (Calvert, 2008), although they are economically dependent on their parents? The main reason, children shape their families' buying behaviors, not only their toy or chocolate choices (Valkenburg & Cantor, 2001). Nowadays, adults get their young children's opinions and approval even on an issue about buying a new car (Kaval & Gülmez, 2019).

One of the main reasons why children play an active role in purchasing behaviors is the family dynamics that have changed over the years (Valkenburg & Cantor, 2001). In the past years, while it was prevalently observed that the parents were more authoritarian and the children were obedient according to the hierarchy within the family, today is a more democratic family structure (Valkenburg & Cantor, 2001). Children now have a voice in decision-making processes in the family (Valkenburg & Cantor, 2001). However, it should not be forgotten that this is more common in Western cultures and may not be valid for Eastern cultures (Valkenburg & Cantor, 2001). For these reasons, it is an understandable motivation for brands to turn toward children as the target audience (Calvert, 2008).

There is a growing body of literature that recognizes the importance of advertisements on children owing to the fact that children have become consumers (Calvert, 2008; Matthes & Naderer, 2015; Valkenburg & Cantor, 2001).

2.4. Product Placement and Children

Children spend most of their leisure time after school interacting with screen devices. They watch movies and cartoons on television or tablet; they play video games on the computer. Children's effective use of media has also attracted the attention of advertisers. This being the case, products have been placed in many contents by the brands, from the entertainment content children watch to the games they play (Calvert, 2008). While the ethical dimension of product placements on children as a target audience has been still and consistently discussed (Kunkel et al., 2004), its cognitive and behavioral effects have been the subject of many studies (Auty & Lewis, 2004; Beaufort, 2018; Hudson & Elliott, 2013; Matthes & Naderer, 2015; Naderer, Matthes & Zeller, 2018; Royne et al., 2017; Sariyer & Ayar, 2013; Toomey & Francis, 2013).

Some studies suggest that especially young children may be more vulnerable to product placements than adults (Charry, 2014; Law & Braun, 2000). As children grow older, they can comprehend the intentions of persuasive messages in the ads (Matthes & Naderer, 2015; Uribe & Fuentes-García, 2017). However, product placements could be below their perceptual thresholds (Matthes & Naderer, 2015). APA called for studies to examine the effects of product placements on children (Kunkel et al., 2004). Until then, the participant group of studies on the effects of product placements was college students (Law & Braun, 2000). After this call, all eyes have turned to the children (Auty & Lewis, 2004; Beaufort, 2018; Charry, 2014; Hudson & Elliott, 2013; Matthes & Naderer, 2015; Naderer, Matthes, Marquart et al., 2018; Naderer, Matthes & Zeller 2018; Royne et al., 2017; Spielvogel et al., 2020; Toomey & Francis, 2013).

2.5. Possible Theoretical Explanation of Product Placement

2.5.1. Change Blindness

The study of Simons and Levin (1998) is groundbreaking as it was the first adaptation of *change blindness* experiments in laboratory environments to real-life experience. One of the experimenters who holds a map stops a random pedestrian walking on campus and asks her/him the location of a building on campus. Meanwhile, two other collaborators who carry a door together, pass through the middle of their conversation; and obstruct the pedestrian's view of the experimenter. Suddenly, the initial experimenter who asks the pedestrian the way replaces by one of the collaborators who

carry the door. The clothes, heights, and tones of voice of these two people who changed places with each other are different from each other. After a while, the collaborator asks the pedestrian whether anything unusual has happened. Surprisingly, half of the participants report that they have not encountered anything out of the ordinary event. This result reveals that *change blindness* is a phenomenon we experience in our daily lives besides two-dimensional materials such as static images or dynamic video clips in laboratory environments.

2.5.2. Inattentional Blindness

In a well-known study by Simons and Chabris (1999), participants were shown a video of people passing basketballs to each other. In the simple task condition, the subjects were asked to count the total passes; in the difficult task condition, the subjects were asked to count the passes separately but simultaneously according to their pass types, bounce, and aerial pass. In the 5-second part of the video, there was a person in a gorilla costume or a woman carrying an umbrella in compliance with the experimental condition to which the participants were assigned. This unexpected but obvious animal or person walked among basketball players passing to each other. Participants were asked whether they encountered anything unusual in the video they had watched. The most surprising finding was that approximately half of the participants could not report seeing this unexpected event. Despite the visible appearance of the gorilla or woman with an umbrella, the unexpected event escaped the attention of the subjects focused on the demanding primary attention task of counting the passes.

The abundance of our visual experiences in daily life leads us to the illusion that our visual representations are equally detailed and complete. Let's say you have entered the exam hall as your exam time is approaching, and you are looking for your place. Just then, your classmate is waving to you. And she comes to you after the exam and asks why you didn't greet her back. However, you are sure that you have not seen her. Because at that time, you directed all your attention to find your exam place before the exam started. And even though your friend is within your sight, you may not see her. We have experienced this and many similar events in our daily lives at the cinema, market, or cafeteria. This phenomenon is called *inattentional blindness* or *perceptual blindness* in the psychology literature.

The 4th episode of the 8th season of the *Game of Thrones* series, which is one of the most-watched TV series worldwide, made a lot of noise. In this epic fantasy series, the appearance of a cardboard coffee cup with a plastic lid, a trace of the modern world, did not escape the attention of some audience members as a shooting error. It was reported that *Starbucks* was mentioned at least 193,000 times on social media and 10,627 times on traditional channels such as radio and television in the first 48 hours after the broadcast (Fisher, 2020). All of this turned out to be an advertising value of \$2.3 billion for the brand (Fisher, 2020).

While watching movies, series, TV shows, or playing video games, our attention is focused on what we watch or play. However, it is not possible for us to process every detail of the scene, even if we assume we can. Due to limited attention capacity, attention is devoted to the priority task, while others are either ignored or given less attention (Gunawardena & Waiguny, 2014). So, we may miss some points in the picture. Just like millions of people who watched that episode of *Game of Thrones* could not see the *Starbucks* cup or not be able to notice many movie mistakes by the filmmakers in the scene transitions (Fisher, 2020). In Simons and Levin's study (1998), participants' attention was focused on their primary task, to give directions of a building located on the campus. In Simons and Chabris' study (1999), participants' attention was focused on their primary task, counting the number of passes in a basketball game. Just like our attention is on the storyline when we watch a movie, series, or TV show, or our attention is on winning the race during the video game. The brands placed on the scene may escape our notice because the product is not primary for us. Just like participants in Simons and Levin's study (1998) could not notice that the person asking for directions had changed, or participants in Simons and Chabris' study (1999) could not see the gorilla had suddenly entered the game. For this reason, after watching embedded entertainment content with product placements, when the audience is asked what placed products they saw, they may not be able to give a correct answer or even claim that they had not seen them. Because the primary purpose of an audience is to make sense of the movie's story (Scott & Craig-Lees, 2010; Yang & Roskos-Ewoldsen, 2007). On the other hand, previous studies have noted the importance of divided attention in product placement (Beaufort, 2018). They argued that product placements are more effective when brands are placed obscurely and accidentally in entertainment content; the audience's cognitive attention and resources

are focused and reserved on the entertainment content rather than the products placed (Beaufort, 2018).

2.6. Media Usage Habits of Children in Turkey

Research conducted in recent years (Anderson et al., 2017) found that the effects of digital screen exposure on children's cognitive development depend on many factors: the age of the child, media content, and interaction with the media tool. For instance, although it is known that screen exposure before the age of two has harmful outcomes in terms of language and cognitive development, it has also been proven that exposure of preschool children to educational media content has positive results on cognitive development (Anderson et al., 2017). However, the same research also suggests that children frequently prefer to watch entertainment media content rather than educational ones (Anderson et al., 2017).

Experiencing lockdowns with COVID-19, which has affected the world, has given rise to children having exposure to digital screens significantly (Montag & Elhai, 2020). “*Survey on Information and Communication Technology Usage by Children*” was applied for the first time in 2013 with children aged 6-15 years in Turkey (Türkiye İstatistik Kurumu [TÜİK], 2021). Due to the COVID-19 pandemic effects, the survey was repeated in 2021 to compare the usage habits of children. Internet usage has risen from 50,8% in 2013 to 82,7% in 2021 (TÜİK, 2021). While usage of tablets was only 7,3% in 2013, this percentage showed dramatically increase to 57,2% in 2021 (TÜİK, 2021). The recent survey applied in the pandemic has shown that children's screen time has increased due to the forced transition from face-to-face education to online education. When asked reasons the internet usage children, access to online education was the first response with 86.2% (TÜİK, 2021).

2.7. The Effects of Product Placement on Child Audience

Subtly placed products in the entertainment content may not be consciously encoded by the audience. Therefore, it is necessary to consider and investigate the behavioral effects of product placements as much as their cognitive dimension (Auty & Lewis, 2004; Beaufort, 2018; Hudson & Elliott, 2013).

Although most studies in the field of effects of product placements have only focused on brand and product attitudes, Auty and Lewis’ pioneering study (2004) investigated

the effects of product placements on the actual behavior of children. Only children aged between 6-7 and 11-12 years, respectively limited and cued processors, were included in the Auty and Lewis' study (2004). Two short clips from the movie "*Home Alone*" were displayed, which are different in product placement while identical in other qualities. In one version of the clips, as the beverage brand, *Pepsi* was placed. On the other hand, in the other version, there was no product placement. Participants watched the movie with their assigned group and then individually interviewed and tested. They revealed that the significant effect of product placement on actual behaviour could be only under the prior exposure condition.

With the boundaries between entertainment content and marketing becoming increasingly blurred, the number of product placements has increased considerably in television programs (Hudson & Elliott, 2013). A 20-minute excerpt of the well-known competition program "*Pop-Idol*", in which healthy and unhealthy foods and beverage products were placed digitally, was watched by two different age groups, which were 7-8 years old (younger group) and 11-12 years old (older group). There was also a control condition that did not include any product placement in their experimental design. Children in the control condition, where there was no product placement, developed fewer positive attitudes towards the entertainment content than the children in the other conditions, where there were healthy or unhealthy product placements. This result confirms previous research findings. The most striking result from the data was that nearly half of the children in the condition of unhealthy product placement stated that they had seen the *Coca-Cola* brand in the program even though they had not been exposed to the *Coca-Cola* placement. A possible explanation for this might be the return of the substantial advertising budget allocated by the *Coca-Cola* brand so far. The results showed that the older group recalled significantly more placed products in the program than the younger group. Also, children in unhealthy product placement conditions recollected significantly more brands than those in healthy ones. However, the effect of product placement on the immediate behavior of the participants was not observed at the expected significance level (Hudson & Elliott, 2013).

Beaufort's study (2018) was designed to determine the behavioral effects of product placement on real-life shopping scenarios in 3- and 9-years old children. The involvement of the 3 to 5 age group in this study, differently from the other studies in

the field, has been a stimulating subject criterion when determining the age group in our thesis study. The most distinguishing difference between Beaufort's high externally valid study (2018) from previous laboratory experiments is the wide product range during selection. Beaufort's study (2018) produced results that corroborated the findings of a great deal of the previous work in this field and showed that embedded products in the movie were chosen nine times more than the ordinary ones by the viewers. Also, this effect was stronger for the younger group which were between three- and five-year-old children, than the older group which were between seven- and nine-year-old ones (Beaufort, 2018).

2.8. Implicit and Explicit Measurements on Effectiveness of Product Placement

A variety of methods are used to assess effectiveness of product placements. One of the problems with the instruments the researchers used to measure the effectiveness, these measurements were based on separate mechanisms. Each has its advantages and drawbacks. Literature on the effectiveness of product placement has emerged that offers contradictory findings because of explicit and implicit measurements. The aim of Law and Braun's study (2000) was to evaluate these two measurement tools and validate the question of which is the most appropriate method for assessing the effectiveness of product placement. Law and Braun (2000) argue that traditional methods, which are explicit measurements, are not practical for the marketplace. From a practical point of view, if the advertiser's goal is to increase customers' willingness to pay for their brand, the effectiveness of product placement should be measured by product choice (Law & Braun, 2000). Product choice, which is the indirect way of measurement, is more suitable to assess consumer behaviors (Law & Braun, 2000). In Law and Braun's study (2000), preparing a shopping list method was used to test implicit memory. Otherwise, if it is aimed to increase brand awareness, measurement with memory tests is more appropriate (Law & Braun, 2000).

In Law and Braun's study (2000), one of the most striking results regarding explicit and implicit measurements is that while seen-only products were not remembered in recall and recognition memory tests by the viewers, they were highly preferred in the product choice task. Moreover, although audio-visual placements were remembered highly, they were selected lowly. Law and Braun (2000) concluded that explicit and

implicit memory, which measure directly or indirectly product placement effectiveness were uncorrelated. Product placement was found to be highly effective in previous studies, which might be due to the adoption of explicit memory tests as a more common method. For this reason, Law and Braun (2000) recommended that this point should be considered when evaluating the results of studies on effectiveness.

Matthes and Naderer (2015) evaluated the effects of placements on actual consumption behaviors in conjunction with brand and product attitudes. Their subjects were children from early to late childhood. These children were exposed to an excerpt of three manipulated versions of the movie “*Alvin and Chipmunks*” which were high-frequency placement level, moderate frequency placement level, and without placement. They used as a product placement an unhealthy food product *Cheese Balls*, which is an unknown brand in Austria. Implicit measures gauge impulsive behaviors, whereas explicit measures evaluate deliberative and reasonable behaviors. As an implicit measure, a spontaneous brand choice test with three options was applied. In this age group, implicit tests are not suitable in methodology. As an explicit measure, evaluation of brand logo was applied. In this procedure, basic adjectives which familiar to the children such as funny were used because Likert scales with multiple choices are not suitable for young children. Matthes and Naderer (2015) revealed that product placement has an influence on only children in the high frequency level of product placement condition. On the contrary to Auty and Lewis’ study (2004), the mediating role of prior exposure was not observed. Also, brand liking as a brand attitude was unrelated with actual consumption behavior. The underlying mechanism of the results was explained with the *implicit persuasion model*.

2.9. An Example of Product Placement Study in Turkey

Although extensive research has been carried out on advertising and product placement in Europe and America, far too little attention has been paid to these areas in the Turkish sample. One of the few studies on children in the Turkish sample about the effects of product placement on brand memory is the study of Sariyer and Ayar (2013). The ages of the participants ranged from 5 to 9. They chose the animation movie “*Toy Story 3*” (2010) as the stimulus in their study because the sales of the products placed in the previous films of the series have increased substantially after the release of the movies. In their studies, Sariyer and Ayar (2013) had individual

interviews after the movie session with the children who came to the cinema to watch the “*Toy Story 3*” movie; instead of an experimental design in a laboratory setting. The study's findings indicated that the children remembered the product placements in a movie for children. The most important predictor of this recall was the desire of children to get their parents to buy placed products.

As stated in the literature review, although extensive research has been carried out on advertisements, the influence of product placements on children has remained relatively untouched (Matthes & Naderer, 2015). This limited number of studies in the literature has predominantly dealt with the effects of product placement through the dimension of consumer behavior (Beaufort, 2018; Hudson & Elliott, 2013; Matthes & Naderer, 2015; Naderer, Matthes, Marquart et al., 2018; Royne et al., 2017; Toomey & Francis, 2013). The current thesis study explored the concept of product placement in a multidisciplinary approach within the intersection of cognitive psychology and advertising.

In the current thesis study, data were collected through face-to-face and one-to-one interviews with 472 children who lived in İzmir province between the ages of 3 and 10, with a total of three experiments. Yaşar University ethics committee approval was obtained for the thesis study.

CHAPTER 3

EXPERIMENT ONE

As mentioned in the literature review, product placement studies among pre-school children are very restricted. In product placement literature, the only study to our knowledge that included children aged 3 to 5 years is Beaufort's study (2018). However, in this study, Beaufort (2018) focused on the actual product choice behavior of the children, not recognition memory.

3.1. Age

Cognitive development of a child consists of individual and environmental factors. Age has been accepted as an essential factor in cognitive development (Uribe & Fuentes-García, 2017).

Pre-schoolers between 2 and 5 years old assume that the information presented in the ads is actual, without knowing that the advertisements they watch have a purpose in selling their products to the audience (Valkenburg & Cantor, 2001). Also, *brand loyalty* between brand and consumer has been started to establish from these ages, three and five years old, and continues in the later stages of life (Beaufort, 2018). In addition, *centration*, which is the behavior of focusing on the most salient feature of the product and ignoring all other qualities, is quite prevalent in purchasing behavior of preschool-age children (Valkenburg & Cantor, 2001).

A systematic literature review has shown that when children are approximately six years old, they can recognize the advertising (Uribe & Fuentes-García, 2017). Children, who are eight years old, can differentiate between entertainment content and advertising (Uribe & Fuentes-García, 2017). Ten years old children can understand the features and targets of advertising (Uribe & Fuentes-García, 2017). For this reason, advertisers believe that reaching children up to 8 through advertisements is the most practical way (Valkenburg & Cantor, 2001). It is thought that negotiation skills are a determining developmental factor in making sense of the persuasive intentions of advertisements (Naderer, Matthes & Zeller, 2018). Nevertheless, the comprehension

of the persuasive intent of an advertisement is different from the product placement (Uribe & Fuentes-García, 2017).

Analytical stage children, ages 7 to 11, are expected to do a more detailed product evaluation (Naderer, Matthes & Zeller, 2018). Adolescents between the ages of 11 and 16, who are in the reflective stage belonging to the age group, which we did not include in our thesis work, can make a product evaluation and selection as detailed as an adult (Naderer, Matthes & Zeller, 2018). However, it is necessary to take a cautious approach that this classification is made for the persuasive messages of traditional advertising methods and cannot provide a clear inference about embedded product placement.

3.2. Perceptual Load

Previous studies in media psychology until Wang and Duff's research (2016) conceptualized and manipulated the concept of *task load* (task difficulty) by reducing it to the cognitive load dimension. *Perceptual load* and *cognitive load* may not increase or decrease in parallel with each other under all circumstances. This situation was exemplified clearly by Wang and Duff (2016). Let's say you are looking for your friend in a theatre hall. If the theatre hall is empty, the perceptual load is low. If the theatre hall is busy, the perceptual load is high. However, the cognitive load remains the same in both perceptual load cases.

The theoretical debate that has dominated the cognitive psychology field for many years is about the attentional selection process in perception. According to *the early selection theory of attention*, perceptual capacity is restricted (Treisman, 1969). For this reason, only necessary stimuli are processed, while other distractions are ignored. The bottleneck metaphor is often used in this approach proposes that attention could be paid to only a limited amount of information. On the other hand, *the late selection theory* argues that perceptual capacity is limitless. All the stimuli in the external environment are perceived without being subjected to any preselection. The attentional selection gets involved in the process later.

The perceptual load theory (Lavie, 1995), which was introduced as an answer to this conflict, suggests that the selection process varies depending on the load type. When considering situations where the cognitive load is high, due to the high demand for the executive function, which stimuli should be prioritized cannot be controlled, and distractions are also included in the processing process as much as the target stimuli.

In line with the early selection, in the case perceptual load is high, only target stimuli are processed, while the non-target stimuli that are distractors are not processed.

In their comprehensive study by Wang and Duff (2016), the effects of peripherally placed ads in games that vary by perceptual and cognitive load levels were examined. In these experiments, peripheral ads were task-irrelevant and acted as a distractor. While lower brand recognition, ad preference, and ad familiarity were observed in the high perceptual load condition, higher brand familiarity was detected in the high cognitive load condition. The results are consistent with the idea that an increase in the perceptual load prevents the processing of distractors, while a high cognitive load produces a reverse effect contrary to the perceptual load on the processing of distractors. Therefore, the findings of their study confirm *the perceptual load theory*.

The recent study conducted by Greene et al. (2020) explored the moderation effect of the cognitive capacity between the perceptual load and the eyewitness memory. Low and high perceptual load conditions in the fictitious crime scene videos were manipulated through the number of items around and the posters on the wall. It is undeniable that there may be differences in perceptual capacities between individuals, just as in cognitive ability. In addition to the perceptual load conditions in Greene et al. (2020) study, the medium level was also included in the current experiment.

3.3. Cognitive Load

In most product placement studies, participants have a single and primary task, such as watching a movie or television program with product placements. However, in their studies in 2014, Gunawardena and Waiguny focused on the effects of *multitasking* on product placement. The subjects were shown a section from a movie that included salient or subtle product placement scenes of familiar or unfamiliar brands by their experimental condition. While the control group was instructed to watch the scene passively, the experimental group was given the task of counting numbers that randomly appeared from anywhere on the stage in due course of watching the scene. Gunawardena and Waiguny (2014) suggested that multitasking increases cognitive load and, as a result, causes *inattentional blindness*, which accompanies memory errors.

The current thesis study tests the following hypotheses.

Hypothesis 1. It is hypothesized that age, perceptual load level, cognitive load level, prior exposure to video stimulus, prior exposure to distracting options, and familiarity with the *Dalin* brand would be predictors of the recognition memory test.

In the study of Hudson and Elliott (2013), older children showed better brand memory performance than younger ones.

Hypothesis 1a. Older children aged between 5 and 6 would recognize the placed brand logo, *Dalin's* chick, in the video clip more than younger children aged between 3 and 4 in the recognition memory test.

Accordance with the *perceptual load theory*, the following hypothesis are developed.

Hypothesis 1b. Participants, who watch the video clip in the low perceptual load version, would more recognize the placed brand by comparison who watch the video clip in the high perceptual load version in the recognition memory test.

Hypothesis 1c. Participants who actively memorize the song in the high cognitive load condition would more recognize the placed brand than passively viewing the video clip in the low cognitive load condition in the recognition memory test.

Hypothesis 1d. Children who reported previously exposed to the video stimulus would more recognize the *Dalin's* chick placed on the video in the recognition memory test.

Hypothesis 1e. Children who reported prior exposure to distracting options which are *Kukuli* and *Sevimli Dostlar*, in the recognition memory test, would less recognize the *Dalin's* chick placed on the video.

In Brennan and Babin's study (2004), it was concluded that brand familiarity has a significant effect on recognition memory. Participants familiar with the brand recognized the product placed in the movie more than those who were unfamiliar with the brand. However, the participants in their study were university students as a convenience sample (Brennan & Babin, 2004).

Hypothesis 1f. Children who are familiar with the *Dalin* brand would more recognize the *Dalin's* chick placed on the video in the recognition memory test.

In their pioneering study, Auty and Lewis (2004) concluded that prior exposure to the stimulus had a significant effect on product selection behavior by creating a reminder effect on the audience. In addition, Beaufort's study (2018) revealed the effect of age on the choice behavior of product placement. Specifically, they found that the younger

group, who were between 3 to 5 years old, chose the placed product more than the older participants, who were between 7 to 9.

Hypothesis 2. It is hypothesized that age, perceptual load level, cognitive load level, prior exposure to video stimulus, and familiarity with the *Dalin* brand would be predictors of the product choice test.

3.4. Method

3.4.1. Participants

A consent form attached parent questionnaire was sent to a total of 242 students through their class teachers as an invitation to participate in the experiment. The parents of eight students, whose consent form was given by their teachers, did not allow their children to participate in the study. Although 13 students had their parents' approval, they could not participate because they were not at school on the day of the experiment.

The experiment was applied to 221 students ($n = 105$ female, $n = 116$ male) from 14 private and state pre-school institutions in the Gaziemir, Bornova, Konak, and Karabağlar districts of Izmir. The participants included in the experiment were aged between three and six ($M_{age} = 4.54$). All participants had normal or corrected-to-normal vision and hearing capability. The data collection process was prolonged due to the coronavirus epidemic and lasted from January 2021 to June 2022.

3.4.2. Stimuli

In this study, the Huawei Matebook D16 model laptop computer with full HD resolution, 137 pixels per inch (PPI) image sensitivity, and 60 Hz screen refresh rate was used, and all visual experiments were carried out on this device. By using a single laptop during the data gathering process, a possible confounding variable that could be caused by screen change has been ruled out.

The original version of the presented video clip is with Turkish subtitles in 3.23 seconds duration. However, the presentation of the subtitled version could have caused more visual load confoundingly. So, subtitles were removed. In addition, according to the pilot study experiences, the children were bored at the end of the clip. For this

reason, the video clip was shortened. The 2-minute audio/visual video clip was displayed to the children.

The audio-visual video stimulus, which is 2 minutes in duration, includes an instructional story about the importance of handwashing rather than a marketing activity. The lyrics of the song and the length of the video are suitable in terms of the perceptual level and the attention span of these age groups.

In the first experiment, a foaming hand soap of the *Dalin* brand was chosen as the product. It has been noted that it is a gender-neutral product, which is belonging to the personal hygiene category. While the foaming hand soap product itself is not featured in the video; the *Dalin* brand's logo, which is the chick, is perceptually salient in the video.

The perceptual load manipulation was created via Adobe After Effects by adding clutter in the form of animal figures in the medium and high load videos. The high load scene (see Figure 3.1. (c)) includes seven animal figures which are lion, rhinoceros, parrot, caterpillar, turtle, giraffe, and zebra; in addition to the low load scene, which has only one animal figure (see Figure 3.1. (a)). The medium load scene (see Figure 3.1. (b)) includes three animal figures which are lion, rhinoceros, and zebra; in addition to the low load scene. In the low load scene, the chick is presented on the head of the little girl. In the other conditions, all animal figures except the chick, are scattered around the bathroom.



Figure 3.1. Example images from (a) low perceptual load, (b) medium perceptual load, and (c) high perceptual load videos.

3.4.3. Procedure

After obtaining the necessary permission from the kindergarten administration, the consent forms were sent to the families of the children who participated in the experiment (see Appendix 1). There is also a questionnaire -containing information about the child's birth date, daily screen time, preferred media tool and usage purpose of the media tool, and familiarity with the brand-attached to the consent form (see Appendix 2).

Students, who were approved for participation in the experiment by their families, were singly taken to an empty and silent classroom at school. In addition, before starting the experiment, it explained in detail that if the child is uncomfortable with the questions asked during the study or for any other reason, s/he can leave the study.

The participants played the visual memory and attention game to warm up for the main experiment. The game consists of two stages. In the first stage of the game, depending on the difficulty level, there are 2, 3, or 4 pictures on the screen (see Figure 3.2). Children are given the directive, "Look at the pictures and memorize them.". The difficulty level of this game varies according to the age level of the participant. In the next phase, the child is expected to choose what s/he has seen before among the distracting other pictures with the instruction "Choose the pictures you saw on the previous screen.".



Figure 3.2. Example images from *Memory & Attention Training for Kids* (a) instruction for easy level, (b) test for easy level, (c) instruction for medium level, (d) test for medium level, (e) instruction for hard level, (f) test for hard level

All participants were divided into two groups based on their age range. 3- to 4-year-olds children were defined as the *younger group* ($n=97$), while 5- to 6-year-olds were defined as the *older group* ($n=124$).

There was no mention of the real purpose of the study. According to the cover story, the children who were in *the high cognitive load / the active condition* ($n=107$) were told that they would learn a song about the importance of hand washing to beat coronavirus. After the study phase, they were going to sing this song with their friends in their class. So, participants in the active condition were asked to memorize the song's lyrics played in the video clip.

In *the low cognitive load / the passive condition* ($n=114$), differently from the active condition, no instruction was given to the participants about memorizing the song lyrics. They were told that they would only listen to a song about the importance of handwashing in the fight against coronavirus. They passively watched the video clip.

The song playing in the current video clip is reprised three times in total to make it easier for children to memorize the song. In both *active* and *passive* conditions, the experimenter sang the song simultaneously with the video to encourage children to sing and get their attention to the video. Thus, the experiment process was not so different from children's daily classroom activities. After this exposure phase, the video clip was not presented again.

In terms of perceptual load, the video clip has three conditions: *low* ($n=80$), *medium* ($n=74$), and *high* ($n=67$). As mentioned in more detail in the stimulus section, the *high* load scene includes eight animal figures, the *medium* load scene includes four animal figures, and the *low* load scene has one animal figure.

Children were randomly assigned to one of the perceptual loads and interaction conditions.

The experiment took an average of 6 minutes and 30 seconds for each participant. Considering the developmental characteristics of the subjects' age group, care was taken to keep the questions short and understandable. Contrary to Auty and Lewis's (2004) and Beaufort's (2018) studies, the period between exposure to the stimulus and product selection was stable for each participant in the current thesis study.

3.4.4. Measurement

3.4.4.1. Parental Survey

In this dissertation study, subjects' parents indicated their children's daily average screen time levels on an hourly basis. They answered the following question "How

much time approximately does your child be exposed to devices with a screen such as a telephone, a tablet, a television, or a computer in a day?" (see Appendix 2). They chose the most frequently digital media tools used by their children. Also, they responded which purpose their children provide access to these media means. There were two options. Participating in online classes and watching educational video content were in education choice while watching cartoons and playing games were in entertainment choice.

3.4.4.2. Prior Exposure

After exposure to the video clip, participants were asked whether they had watched this clip before.

3.4.4.3. Manipulation Check

After the exposure phase, children were asked to sing the song on the video clip on their own to provide the manipulation check. Considering that some children may experience performance anxiety, suggestions were made such as *"as far as you can remember"* and *"You don't have to sing it all."*

3.4.4.4. Recognition Test

The following question was asked to the participants to determine whether they recognized the animal figure (see Figure 3.3) in the product placement in the video clip: *"We just now listened/tried to memorize a song together. Well, can you remember which of the animals below was in the video clip for that song? We saw only one of these four animals in the clip we watched. I want you to say or show this animal."*

The two distractor options were cartoon characters, *Sevimli Dostlar's* duck and *Kukuli's* monkey. *Sevimli Dostlar's* duck is a within-category distractor because of animal similarity, while *Kukuli's* monkey is a cross-category distractor. These two cartoons are well-known by the children in these age groups.

Children told that choose the correct answer among the distractors. A four-alternative forced-choice (4AFC) method was preferred rather than the "Yes / No" question type because children in these age groups generally tend to answer as "Yes" to "Yes / No" questions (Heather Fritzley & Lee, 2003).

After the participants chose an option, they did not receive feedback from the researcher, such as *"Great, you are correct. / You answered wrong."*

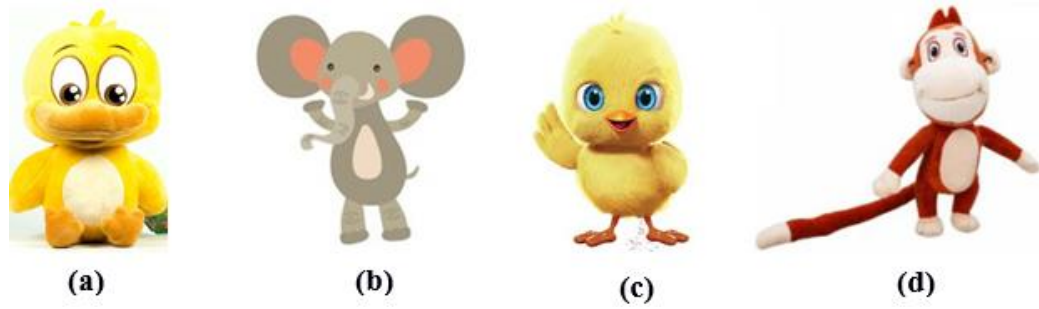


Figure 3.3. Four-alternative forced-choice (4AFC) recognition test (a) Sevimli Dostlar's duck (b) elephant figure (c) Dalin's chick (d) Kukuli's monkey

3.4.4.5. Brand Choice

The following question was posed to the participants: *“We now know how important it is for our health to wash our hands. Which of the following soaps would you like to wash your hands with? Can you show me?”*.

In the case of the participant answering this question with two or more options, the experimenter emphasized that s/he had to choose only one of the products which are given in Figure 3.4.



Figure 3.4. Presented products in the brand choice task (a) Johnson's's Baby (b) Dalin (c) Komili (d) Hipp

3.4.4.6. Verbal Feedback

After the product selection, the following question was asked to the participants: *“Why would you want to wash your hands with this soap?”*. Participants who did not comment on this question were not insisted upon to answer.

3.4.4.7. Prior Exposure to Distracting Options

The following question was asked to determine the prior exposure of the participants to the two distractors included in the recognition test: *“Have you ever watched “Sevimli Dostlar” and “Kukuli” before?”*.

3.5. Results

The majority of families, 37.6 percent, stated that their children are exposed to devices with screens for an average of one to two hours a day (see Table 3.1). 24 percent of the families indicated that their children spend approximately half an hour to an hour in front of the screen. In addition, 1.8 percent of the families declared that their children spending more than five hours with devices with screen, in a day. Namely, almost the one third of the participants spend more than two hours with screens on a daily basis.

Table 3.1. Screen time of participants daily in the first experiment

<i>Screen Time</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>less than half an hour a day</i>	8	3.6 %
<i>half an hour to an hour a day</i>	53	24.0 %
<i>one to two hours a day</i>	83	37.6 %
<i>between two and three hours a day</i>	43	19.5 %
<i>between three and four hours a day</i>	23	10.4 %
<i>between four and five hours a day</i>	7	3.2 %
<i>more than five hours a day</i>	4	1.8 %
Total	221	100.0

The majority of families, 60.2 percent, stated that their children are exposed to mobile phone and television screens in a day frequently as shown in Table 3.2. Mobile phone exposure of the children is at the top of the list with 30.3 percent. This is followed by the television exposure with 29.9 percent. Although not as common as the other two, tablets have become devices that can be easily accessed in the home these days. 14.9 percent of the participants are frequently exposed to tablet screens during the day. 22.6 percent of children are exposed to more than one device screen in a day.

Table 3.2. Most frequently used media tools by participants in the first experiment

<i>Media Tool</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>mobile phone</i>	67	30.3 %
<i>tablet</i>	33	14.9 %
<i>computer</i>	5	2.3 %
<i>television</i>	66	29.9 %
<i>more than one media tool</i>	50	22.6 %
Total	221	100.0

Most of these devices, which are given in Table 3.2, are used for entertainment purposes (see Table 3.3). Parents state that their children use these devices to watch cartoons or to play games in their daily lives. The use of these devices for educational purposes, which is one of the other areas of use, is at a very low level with 2.3 percent as shown in Table 3.3 below.

Table 3.3. The intended use of the media tools in the first experiment

<i>The Intended Use of the Media Tool</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>Education</i>	5	2.3 %
<i>Entertainment</i>	178	80.5 %
<i>For both educational and entertainment purposes</i>	38	17.2 %
Total	221	100.0

80.1 percent of the participants reported that they had not been exposed to this edutainment content before (see Table 3.4). 95.9 percent of the participants stated that they had watched *Kukuli* and *Sevimli Dostlar* presented as distractors in the recognition

memory test (see Table 3.4). Almost half of the families (50.7 %) stated that they have *Dalin* brand hygiene products in their homes and their children are familiar with this brand (see Table 3.4).

Table 3.4. Independent variables (Prior Exposure to Stimuli, Familiarity to the Alternative Options, Brand Familiarity) of the experiment one

	<i>Prior Exposure to Stimuli</i>	<i>Familiarity to the Alternative Options</i>	<i>Brand Familiarity</i>
Yes			
<i>Frequency</i>	44	212	112
<i>Percentage (%)</i>	19.9 %	95.9 %	50.7 %
No			
<i>Frequency</i>	177	9	109
<i>Percentage (%)</i>	80.1 %	4.1 %	49.3 %

As manipulation control, participants in low and high cognitive load conditions, that is, participants who passively watch the video or actively try to memorize the song were asked to sing alone. While 47.7 percent of the participants in the high cognitive load condition could sing the song by heart, this rate was 42.1 percent in the low cognitive load condition (see Table 3.5).

Table 3.5. Recall rates in the manipulation check of the first experiment

	<i>Low Cognitive Load</i>	<i>High Cognitive Load</i>
Recalled		
<i>Frequency</i>	48	51
<i>Percentage (%)</i>	42.1 %	47.7 %
Unrecalled		
<i>Frequency</i>	66	56
<i>Percentage (%)</i>	57.9 %	52.3 %

3.5.1. Binary Logistic Regression Analysis

Binary Logistic Regression analysis was conducted *using IBM SPSS Statistics software (Version 25)*. In the first logistic regression of the first experiment, the recognition of the placed brand logo was examined as the dependent variable. If the participant recognized the *Dalin* chick, it was coded as 1; and if the participant could not recognize the *Dalin* chick, it was coded as 0. The independent variables of this part

were *age* (younger, older), *perceptual load* (low, middle, high), *cognitive load* (passive, active), *prior exposure to stimuli* (no, yes), *previous exposure to distractors* (no, yes) and *Dalin familiarity* (not familiar, familiar). Before the analysis, extremely high correlations were tested, and no problems were detected. The Spearman correlations deviate between -0.22 and 0.09 (see Table 3.6).

Table 3.6. Spearman correlations of the first experiment

	Correlation Coefficients (<i>p</i> values)					
	1	2	3	4	5	6
1. Age	1.00	0.05	-0.02	-0.22	0.002	-0.03
		(0.49)	(0.78)	(0.001)	(0.97)	(0.62)
2. Perceptual Load		1.00	0.03	-0.11	0.01	-0.07
			(0.67)	(0.12)	(0.83)	(0.28)
3. Cognitive Load			1.00	0.06	0.02	0.09
				(0.37)	(0.81)	(0.20)
4. Prior Exposure to Stimuli				1.00	0.05	0.08
					(0.50)	(0.21)
5. Prior Exposure to Distractors					1.00	-0.07
						(0.33)
6. <i>Dalin</i> Familiarity						1.00

The model was found to be significant ($\chi^2(7) = 18.72, p = 0.009$) and fitted according to *Hosmer-Lemeshow* test ($\chi^2(8) = 2.49, p = 0.96$). On the other hand, only 11% of the transition between the categories of recognition was explained by the regression equation, $LL=285.7, Nagelkerke R^2 = 0.11$. When the independent variables examined, only *age* was found to be a significant predictor, $B = 0.97, W(1) = 11.02, p = 0.001$. It has been determined that the probability of recognition of children in the older age group is 2.64 times higher than that of the younger age group, $exp(B) = 2.64, 95\%CI = [1.49, 4.69]$. The model classified 63.3% of participants correctly. The statistics of variables are shown in Table 3.7.

In the second logistic regression of the first experiment, *product choice* was examined as the dependent variable with the same independent variables except for prior exposure to distractors. Unlikely, the regression was not found significant, $\chi^2(6) = 9.04, p = 0.17$ (see Table 3.8).

Table 3.7. Results of a binary logistic regression on recognition memory test for the first experiment

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)
Age	0.97	0.29	11.02	1	0.001	2.64	1.49-4.69
Perceptual Load (1-2)	-0.68	0.35	3.79	1	0.05	0.51	0.26-1.01
Perceptual Load (1-3)	-0.66	0.35	3.45	1	0.06	0.52	0.26-1.04
Cognitive Load	0.06	0.29	0.04	1	0.85	1.06	0.60-1.86
Prior Exposure to Stimuli	0.19	0.37	0.27	1	0.61	1.21	0.59-2.47
Prior Exposure to Distractors	0.41	0.71	0.34	1	0.56	1.51	0.38-6.08
<i>Dalin</i> Familiarity	-0.45	0.29	2.44	1	0.12	0.64	0.36-1.12

Table 3.8. Results of a binary logistic regression on product choice for the first experiment (non-significant model)

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)
Age	0.54	0.29	3.38	1	0.07	1.71	0.97-3.04
Perceptual Load (1-2)	-0.58	0.34	2.87	1	0.09	0.56	0.29-1.10
Perceptual Load (1-3)	-0.60	0.35	3.03	1	0.08	0.55	0.28-1.08
Cognitive Load	0.35	0.29	1.50	1	0.22	1.42	0.81-2.48
Prior Exposure to Stimuli	0.08	0.36	0.05	1	0.83	1.08	0.53-2.20
<i>Dalin</i> Familiarity	-0.27	0.28	0.90	1	0.34	0.77	0.44-1.33

The Table 3.9 presents the responses, as frequency and percentage, of the young and old groups in the recognition memory test. As seen from the table, 54.8 percent of all participants could correctly recognize the *Dalin's* chick placed in the video in the

recognition memory test. A significant portion of the participants who could recognize the chick in the edutainment content, corresponding to 36.2 percent of all participants, was the older group aged between 5 and 6.

Table 3.9. Responses of the recognition memory test in the first experiment

	Younger Group	Older Group	Total Frequency Percentage (%)
Duck Frequency Percentage (%)	21 9.5%	13 5.9 %	34 15.4 %
Elephant Frequency Percentage (%)	16 7.2 %	23 10.4 %	39 17.6 %
Chick Frequency Percentage (%)	41 18.6 %	80 36.2 %	121 54.8 %
Monkey Frequency Percentage (%)	19 8.6 %	8 3.6 %	27 12.2 %
Total Frequency Percentage (%)	97 43.9 %	124 56.1 %	221 100.0 %

The Table 3.10 shows the brands chosen by the participants in frequency and percentage. As seen in the table, *Dalin* was the most preferred brand of the participants, with a rate of 40.7 percent.

Table 3.10. Brand choices of the participants in the first experiment

	<i>Frequency Percentage (%)</i>
<i>Johnson's Baby</i>	19 8.6 %
<i>Hipp</i>	61 27.6 %
<i>Dalin</i>	90 40.7 %
<i>Komili</i>	51 23.1 %
Total	221 100.0 %

3.6. Discussion

In this current thesis study, the type of stimulus used for the first experiment can be called *edutainment placement*, a combination of the two words education and entertainment (Charry, 2014). The audio-visual stimulus used in this experiment aims to teach children the habit of handwashing in a fun way. *Edutainment placements* are often aimed at keeping teenagers from bad habits such as smoking or alcohol. For this reason, research on these placements is not available in the literature for pre-schoolers. Also, this kind of placement might have different attitudinal and behavioural effects on the audience than commercial placements because it has an educational aim as much as the promotion of the placed brand (Charry, 2014).

According to the John's (1999) classification of *advertising literacy*, which is built on Piaget's *theory of cognitive development* (1929), children in the perceptual stage, which corresponds to 3 to 7 years, focus on only a single feature of objects, such as shape and colour. When we asked the children why they chose that product, they replied, "*I like the colour better.*", "*I like the figure on it more.*" this might be one of the reasons such answers are received more often. At the same time, verbal comments of the children about the product choice confirm the study that highlights the importance of the concept of *centration* in the purchasing behaviour of pre-school children (Valkenburg & Cantor, 2001). *Centration* means focusing on a salient feature of the product and ignoring other characteristics when making a purchase decision (Valkenburg & Cantor, 2001). In a study with 5-year-old girls, three different dolls

were presented to the children (Acuff, 2010). Two of them were expensive and high-quality dolls. Although the other one was cheap, a bright red heart was on its dress (Acuff, 2010). Most children wanted to buy this relatively less quality baby because of its salient heart figure (Acuff, 2010). Fifteen participants of our experiment confirmed this qualitative study by giving verbal feedback "*Because it has a duck head*" when choosing the *Hipp* branded product. The fact that the duck-headed product, which has a salient feature among the other options, is significantly different from other products can be considered confounding.

The fact that the application of the study in public and private schools, which are in neighbourhoods with different socioeconomic characteristics, is noteworthy for the generalizability of the study.

Previous exposure to the audio-visual stimulus information was obtained from the children. Whether they had watched this video before or not was asked with a "Yes / No" question pattern. However, children in these age groups generally tend to answer "Yes" to these questions (Heather Fritzley & Lee, 2003). It was not expected that children had high access to the video because the video was published by the *Dalin* brand only on their *YouTube* channel. So, the answers of the preschool children about prior exposure were not found reliable.

Hypothesis 1b. was not supported by the current findings. *The perceptual load* was not a significant predictor of recognition memory. This result might be considered a positive for the advertising and marketing sector. Processing the placed product independently of the *perceptual load* on the scene is a meaningful output in terms of application. Another thing to note is that the number of animal figures which determines the *perceptual load* condition was decided by us. However, we had to check whether this manipulation worked or not. For instance, maybe we needed to provide more animal figures for high perceptual load conditions rather than seven animal figures.

The finding that high or low cognitive load level was not a predictor variable on recognition memory indicates that their memories of the product embedded in the content they watch are not affected negatively even when children are busy with another task simultaneously.

In our daily life experiences, we often tend to multi-task or look at multiple screens

while watching a movie or program on television, such as setting the dinner table or checking the message notifications on our phones. On the other hand, considering the media usage habits of children, it is generally observed that they pay attention to the media content and close themselves to the external stimuli from the environment. Moreover, it is known that children who are allowed to eat in front of a television/tablet are not taught healthy eating behaviour because they do not eat the foods consciously. In a study with university students, cognitive load manipulation was provided by memorizing an 8-digit number simultaneously while participants were exposed to a video stimulus (Yoon et al., 2011). However, the cognitive development of the participants in the current thesis study could not allow this manipulation to be applied. For this reason, it was changed by the instruction to remember the song accompanying the video clip.

In the current experiment, as a dual task, memorizing the lyrics was instructed for participants in the active condition. However, future studies can use visual tasks rather than audio. For instance, there were subtitles at the bottom of the original version of the edutainment stimulus. In this experiment, the subtitles were removed because of the probability of being a confounding variable. If the participant group had consisted of literate, cognitive load manipulation could be provided with subtitles as in their work by Pantoja et al. (2016).

In the light of information from the verbal feedback, some participants added where exactly the *Dalin* chick was located, which was on the top of the girl's head, in their response to the recognition memory question about which animal was in the video. Future studies may also inquire about the location of the brand placed to gain a detailed insight into the *spatial memory* of the audience. Thus, advertisers can specifically identify which areas of the screen attract the viewer's attention more.

The fact that the product selection section is after recall and recognition tests may cause brand-related associations for the subject, which may affect the choice outcome (Law & Braun, 2000). For example, verbal feedback received from a participant after the product selection test is as follows; “*Because I said chick in the other section, for that reason*”.

Responses from verbal feedback on brand selection, “*I love Dalin so much.*” and “*Because it is Dalin.*”, confirm Beaufort (2018), who argues that brand loyalty has

built in these ages.

As a noteworthy contribution, this study can lead to practical implementations of brand logo placements in edutainment content for brands whose target audience is pre-schoolers.



CHAPTER 4

EXPERIMENT TWO

Advertisers, who think that cinema is one of the most practical media tools to reach children, have widely used the strategy of placing their products in animated films (Sarıyer & Ayar, 2013). Based on this, in the second experiment, an animated film for children was chosen as the stimulus type.

One of the situations where children are in the position of direct consumers, is when buying snacks or toys with their pocket money (Arendt et al., 2015). For this reason, unhealthy food, and toy marketers target children as consumers primarily (Arendt et al., 2015). For instance, in the animated movie scene used in the experiment, there are also many toy brand placements, such as *Nerf*, besides *M&M* as a snack brand.

4.1. Product Involvement

Although *involvement* is the subject of many advertising and marketing studies, the approach to the concept differs from study to study (Hang & Auty, 2011; Kamleitner & Khair Jyote, 2013; Lee & Faber, 2007). In a study, the involvement has been investigated with a question of how relevant a product placement is to the scene (Pantoja et al., 2016). In the studies in the game literature, the concept of involvement has been approached from a more motivational point of view (Gunawardena & Waiguny, 2014; Lee & Faber, 2007).

The *product involvement* has been used as the corresponding concept to the audience's interest and relevancy toward that product category (Hang & Auty, 2011; Zaichkowsky, 1985). While stating the limitations of their recent study, they emphasized that the variable of product relevancy as a characteristic feature of the audience might affect memory (Taghipour et al., 2017). Starting from this point of view, product involvement is included and investigated as an independent variable in the second experiment.

4.2. Brand Familiarity

In product placement studies, the concept of *brand familiarity* was measured by whether the brand placed in the media content (movie, series, or video game) was used before by the audience (Scott & Craig-Lees, 2010). Research on brand familiarity effects on product placement has revealed that familiar brands are recognized more than unfamiliar brands by the audience (Brennan & Babin, 2004). Brand familiarity, one of the audience characteristics, is usually obtained in the self-report (Scott & Craig-Lees, 2010). In the current thesis, brand familiarity information was reached through the parents because the participants in question were children.

In the current experiment, as part of the *brand familiarity* question, parents were asked, "*Which of the following brands have you previously purchased chocolate candy product for your child?*" and "*Which of the following laptop computer brands do you have in your home?*" questions were asked. Among options that parents could choose, there were also available "*I don't buy chocolate candy for my child.*", and "*We don't have a laptop computer in our home.*" (see Appendix 3).

4.3. Brand Memory and Choice

When the cost of product placement is taken into account, the effectiveness of embedded marketing has gained importance every year (Kamleitner & Khair Jyote, 2013). Most studies on the effectiveness of product placement have measured memory (Kamleitner & Khair Jyote, 2013). For instance, according to Auty and Lewis (2004), exposure to the placed product could influence the recognition or recall rate by mediating the role of age that is the indication of cognitive ability. This is explicit memory pathway (Auty & Lewis, 2004). A problem with this measurement, which assesses product placement effectiveness with only memory, is it fails to take implicit learning into account (Kamleitner & Khair Jyote, 2013). However, we cannot assume that if one product is memorable, it is also likeable or purchasable (Kamleitner & Khair Jyote, 2013). There could be two possible pathways underlying the product choice behaviour (Auty & Lewis, 2004). Prior studies have noted that product placements are processed in implicit ways (Beaufort, 2018). Accordingly, behavioural, and attitudinal effects are higher in cases where recall and recognition are low in the explicit memory test (Beaufort, 2018).

Advertisers believe mistakenly that a placed product must be recognized or recalled by viewers to influence their product choice behaviors (Auty & Lewis, 2004). However, it is not a must. The fact is that cognition and affect are individual, separate mechanisms (Auty & Lewis, 2004). Auty and Lewis (2004) explained it with the following example. After we read a book or watch a movie, we start to forget about story details in time. However, we can remember how we feel about that book or movie. In other words, cognition is related to explicit memory, while affect is associated with implicit memory. Hence, viewers may develop familiarity with the placed product and choose it even though they cannot recognize or recall the brand (Auty & Lewis, 2004). On the other hand, the *novelty effect* can be involved instead of familiarity in children (Auty & Lewis, 2004).

In their study by Royne et al. (2017), children between the ages of 6 and 11 were shown a 15-minute episode of the television program for children called *SpongeBob*. It was found that healthy (milk) and unhealthy (cola) beverage product placements did not affect children's product selection behavior; however, children's favorite beverage product was the most significant predictor of their selection behavior (Royne et al., 2017).

In Toomey and Francis's (2013) exploratory study, pre-adolescents aged 8 to 12 were shown approximately 4-minute video clips placed *Coca-Cola Zero* or an unbranded soft drink. Participants were asked about their preferences and choices about the product immediately after exposure and two weeks later. The results show that product placement did not have a significant effect on product preference and choice.

Considering the studies in the literature, the current experiment tests the following hypotheses.

Hypothesis 1. It is hypothesized that product involvement, prior exposure to the movie, familiarity with the *M&M* and *Sony* brands would be predictors of the recall test.

In his comprehensive research, John (1999) stated that *brand awareness* in children was built earlier in child-oriented product categories, for example, toys or snacks, by comparison with adult-oriented product categories, for example, technological devices. By this assumption, child-oriented product placements such as *M&M* are more involved to the target audience aged between 7 and 10 years, while adult-oriented product placements such as *Sony* are more irrelevant to the target audience.

Kamleitner and Khair Jyote (2013) argued that product involvement enhances recall memory because of the audience's increased attention.

Hypothesis 1a. Participants who were exposed to the movie with the *M&M* product placement, which is involved to the target group, would recall the brand more in the recall task than participants who were exposed to the movie with the *Sony* product placement.

Hypothesis 1b. Children who reported previously exposed to the movie would more recall the placed brand in the movie.

In the study by Brennan and Babin (2004), participants recognized familiar brand placements more than unfamiliar ones on the memory test. In this current experiment, the recall memory is measured instead of recognition. Also, unlike the current thesis, their participants consisted of university students.

Hypothesis 1c. Children who are familiar with the *M&M* brand would more recall the *M&M* brand placed in the movie.

Hypothesis 1d. Children who are familiar with the *Sony* brand would more recall the *Sony* brand placed in the movie.

Hypothesis 2. It is hypothesized that product involvement, prior exposure to the movie, familiarity with the *M&M* and *Sony* brands would be predictors of the brand choice test.

4.4. Method

4.4.1. Participants

As in the first experiment, questionnaires for parents attached to the consent forms were sent to the parents through the classroom teachers. Parents of 12 students did not consent to their children participating in the study. Although the parents of three students gave their consent, the students could not participate in the study because they were not at school on the day of the experiment. In addition, one student was excluded from the study because his/her consent form was not signed, although his/her questionnaire form for parents was filled out.

The second study was carried out with a total of 142 students (n = 68 female, 48%; n = 74 male, 52%) in two public schools in the Konak and Karabağlar districts of İzmir.

Data collection was from September 2021 to June 2022. Participants were 2nd, 3rd, and 4th-grade elementary school students. The mean age of the participants was 7.7 years. It was reported by their parents that 47.2% of the participants were exposed to digital screens for an average of one to two hours a day.

4.4.2. Stimuli

In the second experiment of the current thesis study, two scenes from the movie “*The Smurfs*” were used, one of which was in the study of Naderer, Matthes and Zeller (2018).

“*The Smurfs*” is a live-action and computer-animated comedy film. Although the movie was released in the general viewers category in Turkey, it generally appeals to the audience aged 7 to 11 years, which is the same as our participants' age group. Another factor in choosing this movie as a stimulus is that it is not gender-specific. In other words, the plot and the characters appeal to girls and boys equally.

As a result of the chaos that arises when the evil wizard Gargamel locates the Smurfs' village; the Smurfs pass through a magical door and find themselves in the middle of New York's Central Park. The Smurfs must find a way to get back to their village before Gargamel catches them. Fortunately, they will find some human supporters during this turmoil. Unlike the original cartoon movie version of *The Smurfs*, the inclusion of human characters also makes it possible to place products.

Turkish dubbed versions of excerpts from *The Smurfs*, which are in 4 minutes 38 seconds durations, include product placements *M&M* and *Sony*. To minimize the serial position effect, scenes with the product placements took place roughly in the middle of the approximately 4-minute scene presented to the subjects. In one of those scenes, when they are looking for a star glass in a toy store, Grouchy Smurf falls into a bowl full of *M&M*'s (see Figure 4.1 (a)), which he initially refers to as “smurf droppings” because of chocolate candies' blue colour. Then, he falls in love with a green *M&M* plush (see Figure 4.1 (b)) and has a nice conversation with her. The exposure time for participants' *M&M* product placement is in a few scenes, in a total of 37 seconds.



Figure 4.1. Example images of the presented scene to the participants in the *high involvement condition*

Another product placement scene takes place in the kitchen of the Smurfs' human supporters' homes. While the Smurfs play with electric kitchen machines, one of their human supporters, Patrick, uses his *Sony* laptop to learn more about the Smurfs and the blue moon. Papa Smurf is on the computer during this research (see Figure 4.2). Product placement, a *Sony*-branded laptop, is involved in a few scenes that lasted 35 seconds in total. Both the front profile and the rear profile of the product appear in these scenes. While the brand name is on the front profile, the brand logo is on the rear.



Figure 4.2. Example image of the presented scene to the participants in the *low involvement condition*

4.4.3. Procedure

Children who were approved by their parents to participate in the study were brought to the school library or an empty classroom without knowing the real purpose of the study.

The most complicated level of the memory and attention game, which was in the first study, was presented to the children as a warm-up. In this game, five pictures were shown with the instruction "*Look at the pictures and memorize them.*" (see Figure 4.3 (a)). 10 seconds later, the participants were expected to show or say the correct pictures

with the directive "Now choose only the pictures you saw on the previous screen." (see Figure 4.3 (b)).



Figure 4.3. Example images from *Memory & Attention Training for Kids* (a) instruction for expert level, (b) test for expert level

The participant was given the following instruction: "Now, we will watch a movie scene first. After, I will ask you a few simple questions about this scene we're watching."

Participants were randomly assigned to the involvement conditions. In the *high involvement condition* ($n=75$), the *M&M* brand, which is familiar to the target group, was used. The movie also includes another product placement, *Sony*. In the *low involvement condition* ($n=67$), this technology company was used as a stimulus due to unfamiliarity with the children compared to a chocolate candy brand.

In the second study, children were not given any extra instruction during the watching task, contrary to the first experiment. Participants watched the movie excerpt without simultaneous tasks such as memorizing a name, counting an action, or finding a target object.

4.4.4. Measurement

4.4.4.1. Prior Exposure

Participants were asked about their previous exposure with the following question: "Have you ever watched this movie before? Do you remember?". The answers were coded, that is, 1 = Yes, 0 = No.

4.4.4.2. Free Recall

After the presentation of the stimuli, free brand recall was measured by asking subjects to retell the film scene they had seen with the following instruction: "What do you remember about this movie we watched? Can you tell me?".

Limited processors need more prompts compared to cued processors (Auty & Lewis, 2004). Hence, age or cognitive ability is related to the need for prompts (Auty & Lewis, 2004). Age groups in the current thesis study's second and third experiments were close with Auty and Lewis' (2004). The nine leading questions used by Auty and Lewis (2004) in their research were adapted to the current study. During free recall, the participant was asked the following leading questions:

In the high involvement condition following questions asked to the participants.

- *What were the Smurfs doing?*
- *Anything else you would like to add?*
- *Did one of the Smurfs falls into a candy bowl?*
- *What did he fall into?*
- *Was it a colourful confectionery that he fell into?*
- *What colour was it?*
- *Was that chocolate candy?*
- *What was the brand of the chocolate candies?*

In the low involvement condition following questions asked to the participants.

- *What were the Smurfs doing?*
- *Anything else you would like to add?*
- *Was one of the Smurfs standing on something when talking about the Blue Moon?*
- *What was he standing on?*
- *Was it a technological product that he was standing on?*
- *What colour was it?*
- *Was it a computer?*
- *What was the brand of the computer?*

The given answers were noted and then coded for free recall, that is, 1 = *M&M* mentioned, 0 = *M&M* not mentioned, or 1 = *Sony* mentioned, 0 = *Sony* not mentioned.

4.4.4.3. Recognition Test

In the high involvement condition, children were asked, “*Can you remember that Grouchy Smurf has a talk with which plush? Please show it among the characters the below*”. Saying or pointing to the green plush, in the Figure 4.4, was accepted as the correct answer.



Figure 4.4. Presented M&M characters in recognition memory test

In the low involvement condition, children were asked the following question: “*Can you remember which smurf was above the computer while it was talking about the Blue Moon? Please show it among the smurfs below.*”. Saying or pointing the Papa smurf, in the Figure 4.5, was accepted as the correct answer.



Figure 4.5. Presented Smurf characters in the recognition memory test

4.4.4.4. Brand Choice

In the high involvement condition, children were asked: “*Even though we know that eating chocolate and sugar is harmful to our health if you were to choose one of these chocolate candies, which would you prefer to eat?*” as a brand choice task. The salient difference between two chocolate candies, which are shown in Figure 4.6, is that there was a white “*m*” letter in lower case, which is the logo of the M&M, on the chocolate candies in Figure 4.6 (a).

In this choice task, chocolate candies were not asked in a packaged form because children were exposed to the product without the package in the movie.



Figure 4.6. Presented chocolate candies in brand choice task (a) *M&M* (b) *Bonibon*

In the low involvement condition, children were asked a hypothetical question: “*Let's say your parents will buy you a new computer as a birthday present. Which of these two computers would you like them to get? The top computer or the bottom computer?*”.

Sony and *MacBook* laptop computers were presented as the front-views, the back-views, and logos (see Figure 4.7).



SONY



Apple MacBook Air

Figure 4.7. Presented laptop computers in brand choice task (a) *Sony* (b) *MacBook Air*

Selecting the placed product was coded as 1, and selecting the alternative was coded as 0.

4.4.4.5. Verbal Feedback

After the brand choice, participants were asked why they specifically chose this brand instead of the other one. Verbal feedback from children provided additional insights about brand choice behaviours.

4.5. Results

As can be seen in the Table 4.1, the majority of the parents, 47.2 percent, reported that their children's daily screen exposure time was between one and two hours. 21.8 percent of the families, stated that their children are exposed to screens for an average of two to three hours a day. In addition, 4.9 percent of the families declared that their children spending five hours and more with devices with screen, in a day. Namely, 42.2 percent of the children spend more than two hours with screens on a daily basis.

Table 4.1. Screen time of participants daily in the second experiment

<i>Screen Time</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>none</i>	1	0.7 %
<i>less than an hour a day</i>	14	9.9 %
<i>one to two hours a day</i>	67	47.2 %
<i>between two and three hours a day</i>	31	21.8 %
<i>between three and four hours a day</i>	17	12.0 %
<i>between four and five hours a day</i>	5	3.5 %
<i>between five and six hours a day</i>	3	2.1 %
<i>between six and seven hours a day</i>	3	2.1 %
<i>more than seven hours a day</i>	1	0.7 %
Total	142	100.0

55.6 percent of the parents stated that their children are exposed to tablets and mobile phone screens frequently in a day as shown in Table 4.2. 31 percent of the participants use the tablets more frequently, one of the visual media tools, in their daily lives. This is followed by the mobile phone screen exposure with 24.6 percent. Moreover, 14.1 percent of the participants are exposed to more than one device screen in a day.

Table 4.2. Most frequently used media tools by participants in the second experiment

<i>Media Tool</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>mobile phone</i>	35	24.6 %
<i>tablet</i>	44	31.0 %
<i>computer</i>	13	9.2 %
<i>television</i>	30	21.1 %
<i>more than one media tool</i>	20	14.1 %
Total	142	100.0

For this age group, most of these devices, which are given in Table 4.2 are used for entertainment purposes (see Table 4.3). The rate of using these devices for educational purposes in this age group is higher than the pre-schoolers group. The reason for this may be that children's use of these devices for online classes has increased due to the online or hybrid education models implemented after the COVID-19 pandemic.

Table 4.3. Usage purposes of media tools by participants in the second study

<i>The Intended Use of the Media Tool</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>Education</i>	12	8.5 %
<i>Entertainment</i>	98	69.0 %
<i>For both educational and entertainment purposes</i>	32	22.5 %
Total	142	100.0

As estimated, 93 percent of the parents stated they bought chocolate candy products for their children, while 62.7 of them reported they had a laptop computer at home (see Table 4.4). In other words, as a child-oriented product, chocolate candy can be

accepted *involved* to the target group of the study, and as an adult-oriented product, the computer can be taken *irrelevant* to the target group.

Table 4.4. Candy consumption and computer accessibility of the participants in the second experiment

	<i>Candy Consumption</i>	<i>Computer Accessibility</i>
<i>Yes</i> <i>Frequency</i> <i>Percentage (%)</i>	132 93.0 %	89 62.7 %
<i>No</i> <i>Frequency</i> <i>Percentage (%)</i>	10 7.0 %	53 37.3 %

While 12 percent of families stated that they had bought *M&M* brand chocolate confectionery products for their children before, only 0.7 percent reported they had a *Sony* branded laptop in their homes (see Table 4.5).

Table 4.5. Brand familiarities of the participants in the second experiment

	<i>M&M Familiarity</i>	<i>Sony Familiarity</i>
<i>Familiar</i> <i>Frequency</i> <i>Percentage (%)</i>	17 12.0 %	1 0.7 %
<i>Unfamiliar</i> <i>Frequency</i> <i>Percentage (%)</i>	125 88.0 %	141 99.3 %

While 70.4 percent of the participants reported that they had watched *The Smurfs* movie before, 29.6 percent stated that they had not seen it before.

In the recognition memory test, which was used to control whether had been watched or not the scene where the product placement was, 90.1 percent of the participants answered correctly.

In product selection, 47.2 percent of the participants chose the placed brands in the movie, *M&M* and *Sony*, while 52.8 percent preferred alternative brands, *Bonibon* and *Apple*.

4.5.1. Binary Logistic Regression Analysis

In the first logistic regression of the second experiment, the free recall was examined as the dependent variable. If the participant recalled, it was coded as 1, and if not, it was coded as 0. The independent variables were *Sony* familiarity (not familiar or familiar), prior exposure to the film (no or yes), *M&M* familiarity (not familiar or familiar), and involvement (high-involvement or low-involvement). Before the analysis, extremely high correlations were tested, and no problems were detected. The Spearman correlations deviate between -0.18 and 0.19 (see Table 4.6).

Table 4.6. Spearman correlations of the second experiment

	Correlation Coefficients (<i>p</i> values)			
	1	2	3	4
1. Involvement	1.00	0.19 (0.02)	-0.18 (0.04)	-0.08 (0.35)
2. Prior Exposure of Film		1.00	-0.14 (0.09)	-0.06 (0.52)
3. <i>M&M</i> Familiarity			1.00	-0.03 (0.71)
4. <i>Sony</i> Familiarity				1.00

The model was found to be significant ($\chi^2(4) = 24.80, p < 0.001$) and fitted according to *Hosmer-Lemeshow* test ($\chi^2(4) = 1.36, p = 0.85$). Transition probability predicted by regression was 24%, $LL=138.10$, *Nagelkerke* $R^2 = 0.24$. Involvement ($B = 1.60, W[1] = 11.34, p = 0.001$) and *M&M* familiarity ($B = 1.33, W[1] = 5.44, p = 0.02$) were found to be significant predictors. The free recall probability of the high-involvement (candy) group is 4.97 times higher than the low-involvement (computer) group's free recall probability, $exp(B) = 4.97, 95\%CI = [1.96 \ 12.66]$. Besides, free recall probability of the *M&M* familiar group was 3.80 times higher than the *M&M* unfamiliar group, $exp(B) = 3.80, 95\%CI = [1.24 \ 11.64]$. The statistics of variables shown in Table 4.7. The model classified 77.5% of participants correctly. In the second logistic regression of second experiment product selection was examined as dependent variable with the same independent variables. Unlikely, the regression was not found significant, $\chi^2(4) = 7.00, p = 0.14$ (see Table 4.8).

Table 4.7. Results of a binary logistic regression on recall memory test for the second experiment

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)
Involvement *	1.60	0.48	11.34	1	0.001	4.97	1.96-12.66
Prior							
Exposure of Film	-0.40	0.51	0.63	1	0.43	0.67	0.25-1.81
<i>M&M</i>							
Familiarity	1.33	0.57	5.44	1	0.02	3.80	1.24-11.64
<i>Sony</i>							
Familiarity	-20.66	40193	0.00	1	1.00	0.00	0.00-0.00

**Since the low-involvement group is expected to remember less, the probability of switching from the Sony group coded as 2 to the M&M group coded as 1 was calculated in this analysis in order to better see the effect. Only this variable coded "last" as reference category during analysis.*

Table 4.8. Results of a binary logistic regression on product choice for the second experiment (non-significant model)

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)
Involvement	-0.57	0.35	2.61	1	0.11	0.57	0.28-1.13
Prior							
Exposure of Film	-0.24	0.39	0.37	1	0.54	0.79	0.37-1.69
<i>M&M</i>							
Familiarity	0.61	0.55	1.22	1	0.27	1.84	0.62-5.43
<i>Sony</i>							
Familiarity	-21.37	40193	0.00	1	1.00	0.00	0.00-0.00

While 26.1 percent of the participants could remember the product placed in the movie scene during the recall memory test, 73.9 percent could not (see Table 4.9). A

significant portion of the participants who remembered the placed product in the movie scene, corresponding to 21.1 percent of all participants, belonged to the *high involvement* condition and were exposed to *M&M* product placement.

Table 4.9. Recall memory test responses of participants in the high involvement and low involvement conditions in the second experiment

	High Involvement Condition (M&M)	Low Involvement Condition (SONY)	Total Frequency Percentage (%)
Recalled Frequency Percentage (%)	30 21.1 %	7 5 %	37 26.1 %
Unrecalled Frequency Percentage (%)	45 31.7 %	60 42.2 %	105 73.9 %
Total Frequency Percentage (%)	75 52.8 %	67 47.2 %	142 100.0 %

4.6. Discussion

In the product selection section, no reference is made to the relevant movie scene, as in the work of other researchers (Law & Braun, 2000). Subjects were asked to make a choice over a hypothetical scenario. This short scene was as follows; “*Let's say your parents will buy you a new computer as a birthday present. Which of the following two computers would you like them to buy?*”. This scenario example had a downside. Some subjects had to choose the affordable one because one brand was relatively more expensive than the other, and their families did not have the financial resources to afford it. For example, the verbal feedback of a participant who answered “*Sony*” to the brand selection question is as follows: “*Because it's a little cheap. So that they don't run out of money. The other one is more expensive. Because it is iPhone.*”. On the other hand, this scenario had a facilitating effect on the subjects about the internalization of the question.

In the second experiment, a participant stated verbal feedback after choosing the

product, “*Because it looks like the computer that Papa Smurf jumped on.*” The participant openly declared that she was under the influence of the movie scene she watched. However, the remarkable point was that she chose the *MacBook* laptop, not the *Sony* laptop.

In the second experiment, some of the verbal feedback received from the participants after the product choice task can be given as examples of the *novelty effect* mentioned in the study of Auty and Lewis (2004). (“*Because I have never tasted it, I am just wondering.*”, “*I have never eaten M&M’s. I have always had Bonibon. Now I wanted to taste it because Bonibon is so classic.*”, “*Because I have never seen that computer in my life.*”, “*The brand is different.*”)

“*The Smurfs*” used in the experiment is a live-action/computer-animated movie. We obtained high external and low internal validity by choosing an existing film as in the work of Naderer, Matthes and Zeller (2018) instead of creating the video stimulus unprofessionally as in their work by Kamleitner and Khair Jyote (2013).

According to the *emotional conditioning theory*, the emotional attitude of the audience towards the entertainment content (movie, series, game) in which the product placement takes part; matches the product placed over time (Naderer, Matthes & Zeller, 2018). For this reason, whether the audience has a positive or negative emotional attitude towards the stimulus they were exposed should be considered as in their work by Law and Braun (2000). Also, evaluations of the participants could be inquired about the character interacting with the placed product intercalarily to the series or movies to which the scenes they watched belonged.

Although, as a stimulus, scenes from a movie were used in the experiment, it is good to be cautious about generalizing the results to all movies; because the real cinema experience draws the audience into themselves with many technological innovations (Sariyer & Ayar, 2013). The sound effects, the size of the movie screen, or being a 2D or 3D movie might differentiate the effectiveness of product placement (Sariyer & Ayar, 2013).

It will also be necessary to consider the possibility that children who are previous exposure to these movies may have been watched versions without product placement.

Contrary to Auty and Lewis’ (2004) study, in the current thesis study, movie phases were individual, because the waiting period could be a confounding variable.

Since the prefrontal cortex of the brain, which includes higher cognitive functions such as decision making and logical thinking, has not yet developed in children and cannot complete its development until young adulthood, children behave more instinctively than adults (Ardila, 2013). For this reason, it can be assumed that children act more instinctively than rationally during their purchasing behavior. It is necessary to consider this developmental feature when interpreting the product selection behavior of this age group.

Apple ranks 4th in the computer market in 2020, with a market share of 8.1% (Canalys, 2020). On the other hand, the *Sony* brand, the placed product in the movie, could not hold as much as *Apple* in the computer market. Instead of *Apple*, brands with a closer market share to *Sony* could have been chosen as the alternative brand in the product choice task.

Responses from verbal feedback also reveal cultural influences on brand selection. For instance, these are some answers to the question of choosing between *M&M* and *Bonibon*; “*Because it is sold in another country, Germany. It tastes better.*”, “*The other was done by foreigners. Turks did this.*”, “*Because it's made in Turkey.*”.

Although asked parents about brand familiarity by way of the question “*Which of the following brands have you previously purchased chocolate confectionery products for your child?*”; no inquiry was made about the frequency of using these brands. In addition, the concept of brand familiarity was measured by the question directed to the parents “*Which of the following laptop computer brands do you have in your home?*”. However, the verbal feedback of participants received after the product selection task is that it would be more appropriate to focus on familiarity with the technological products, not only on the laptop computer product. (“*Because my PlayStation is also branded by Sony.*”, “*My tablet is Apple.*”)

CHAPTER 5

EXPERIMENT THREE

In the literature, *modality of placement* has been thought of as a key factor in the effectiveness of product placement (Charry, 2014). Placement advisors have the opinion that the most effective modal of placement is mentioned verbally and endorsed by a main character (Law & Braun, 2000). Also, they suggest using the placed product by a main character to brands for enhancing the effectiveness of the placement (Law & Braun, 2000). At this point, defining the effectiveness concept becomes more of an issue because some studies disagree with this recommendation (Law & Braun, 2000). Some studies argue that verbal mention of the main character about the placed product has a negative effect on brand recall (Law & Braun, 2000).

In Charry's research (2014) on the modality effect of product placements with children aged 8-11, it was concluded that bimodal (audio-visual) product placements had a significant effect on developing positive attitudes towards healthy food compared to unimodal (solely visual) product placements. In terms of behavioral effects, in parallel with the positive attitudes, it was found that the participants who were exposed to the scenes of TV series with bimodal placements; chose more fruit and vegetable products than unimodal ones (Charry, 2014).

The study that content analysis of 200 movies released between 1996 and 2005 reported 69% of these entertainment content included product placement (Sutherland et al., 2010). Studies on the evolvment of product placements over time show that although there is no difference in the amount of product placed, the product is placed more efficiently in the entertainment content (Sutherland et al., 2010). For most movies, the interaction that creates this efficiency is achieved through *character product interaction* (CPI).

5.1. Character Product Interaction (CPI)

The concept of *parasocial interaction* means that the audience has a one-way interaction with the media characters (Knoll et al., 2015; Vazquez et al., 2020). The

interaction is unidirectional because while the media character is in the influencer role with physical appearance and behaviors, the audience is in the position of being influenced by the media character (Knoll et al., 2015; Vazquez et al., 2020). From their appearance to their preferences, many features of these characters are modeled by the audience (Knoll et al., 2015; Vazquez et al., 2020). Moreover, the audience is affected by the good or bad events that happen to the character of a TV series or movie as if it had happened to their close friend or family member in daily life (Knoll et al., 2015; Vazquez et al., 2020). As such, a product or brand placed through *character-product interaction* (CPI) will inevitably create more positive associations in the audience and increase the preferability level of the brand (Naderer, Matthes & Zeller, 2018).

In content analysis studies, it has been observed that energy-dense products are often embedded in entertainment content (Naderer, Matthes & Zeller, 2018). *M&M*, as seen in the second experiment, and *Coca-Cola* products used in the third experiment are also in this unhealthy food and beverage category. There might also be an ethical violation dimension of these product placements, considering the health problems such as childhood obesity and diabetes (Naderer, Matthes & Zeller, 2018).

In the character product interaction (CPI) placements, a main or side character in the movie, game, or show interacts physically with the placed product by using it. Product placement studies on children showed that in the entertainment content, which are animations, cartoons, or movies, children's favorite character consumes unhealthy food or beverage products and then makes positive comments about these brands (Naderer, Matthes & Zeller, 2018). Mostly, CPI was provided in this way.

The term *evaluative conditioning* refers to the transfer of positive affections and associations of the television program or movie embedded with the product placement to the brand (Arendt et al., 2015). Creating positive attitudes relating to the brand in the audience depends on some preconditions (Arendt et al., 2015). Firstly, the movie or television program embedded with the product placement must be liked by the audience (Arendt et al., 2015). Secondly, the viewer must be exposed to this conditioning repeatedly (Arendt et al., 2015).

5.1.1. Social Learning Theory

The underlying effectiveness of product placements provided with character-product interaction (CPI) can be based on *Social Learning Theory* (Bandura & Walters, 1977),

also known as *modelling*. There are two fundamental roles for learning through modelling: agent and learner. Although the agent, called a model or a role model, is usually older than the learner, s/he can also be a peer, especially during adolescence. In this social cognitive learning process, the two crucial actions of the learner are to observe the agent and replicate the observed behaviors of the agent. The agent does not have to influence the learner directly; the learning can happen vicariously (Bandura & Walters, 1977). It has been argued that there is no need for direct interaction for modelling and that mass media such as television can be a tool for indirect learning (Bandura, 1986). Considering today's social media evolution, the emergence of a new profession called *influencer* might be a power of vicarious learning. Influencers promote buying behaviors by sharing their experiences and thoughts about a product or service with their followers through social media channels. Then, their followers exhibit purchasing behaviors even if they have not used these products.

In product placements where character-product interaction (CPI) takes place, there is a *vicarious learning* relationship between the character of the movie or series, as an agent, and the audience, as a learner (Kamleitner & Khair Jyote, 2013). The audience learns from the main character how and for what purpose the placed product usage (Kamleitner & Khair Jyote, 2013).

5.2. Literature Review of CPI

In Yang and Roskos-Ewoldsen's (2007) study, subjects were randomly assigned to three levels of product placement: background placement, character-product interaction (CPI) placement, and story-connected placement. Subjects recognized significantly more placed products in the two conditions, CPI placement, and story-connected placement, than in the background condition. However, there were no significant differences in recognition rate between conditions of CPI placement and story-connected placement.

In Kamleitner and Khair Jyote's (2013) study, product placement effectiveness was assessed by measuring brand attitude, willingness to pay, purchase intent, and memory. Also, until this study, there have been no controlled studies that compare differences between character product interaction (CPI) placement and only visual placement.

In Naderer, Matthes and Zeller (2018) study, the levels of the character product interaction variable were three scenes from the movie *The Smurfs* that were between

the *M&M* chocolate candy product and the grouchy smurf character. In one of these seven-minute excerpts of the movie, which was the static product placement condition, the grouchy smurf did not interact physically with the *M&M* chocolate candy. In the other scene, which was the character product interaction placement, the grouchy smurf consumed the *M&M* chocolate candy and stated that delicious. In the control scene, subjects were exposed to a scene with the same character but no product placement. The results of Naderer, Matthes and Zeller (2018) study showed that the only presence of product placement has a significant cognitive and conative effect, regardless of whether the product placement type is static or character product interaction. That means placed products have higher brand recognition and product choice than no placement condition. The study (Naderer, Matthes & Zeller, 2018) did not detect any evidence of moderating effect of age, which is the predictor of cognitive development, on product placements. This means that adolescents are just as vulnerable to the cognitive and constructive effects of product placement as children. A possible explanation for this result might be that product placements are often processed in implicit ways. In this implicit persuasion model, it has not been clarified how cognitive resources affect the process yet. Contrary to Auty and Lewis' study, Naderer, Matthes and Zeller (2018) study did not find the moderating effect of familiarity with the movie on brand recognition and brand choice.

Another experimental study of Naderer, Matthes, Marquart, et al. (2018) explored the effect of brand integration level on actual product selection behavior of young children between 6 and 11 years old. Using the software called *PowToon*, cartoon scenes placing snack brand *Fritos* were created. There were two integration conditions: screen product placement and plot product placement. In the plot product placement condition, there was an interaction between the main character of the cartoon and the placed product. On the other hand, in the screen placement condition, there was no interaction between the main character and the product. The results showed that the participants who watched the plot product placement scene in which the main character interacted with the placed brand significantly more chose the *Fritos* brand by comparison with the screen product placement condition.

In light of the findings from the extensive literature review, the following hypotheses are tested in the present experiment.

Hypothesis 1. It is hypothesized that interaction and familiarity with the *Coca-Cola* brand would be predictors of the recall memory test.

Hypothesis 1a. Participants who are in interaction condition would more recall the placed product than participants who are in the no-interaction condition.

Hypothesis 1b. Children who are familiar with the *Coca-Cola* brand would more recall the brand placed in the recall memory test.

Hypothesis 2. It is hypothesized that interaction and familiarity with the *Coca-Cola* brand would be predictors of the recognition memory test.

Hypothesis 2a. Participants who are in interaction condition would more recognize the placed product than participants who are in the no-interaction condition.

Hypothesis 2b. Children who are familiar with the *Coca-Cola* brand would more recognize the brand placed in the recognition memory test.

5.3. Method

5.3.1. Participants

The 129 forms, the consent forms stapled with the questionnaires for the parents, were sent to the families. Two of these forms were returned totally unfilled. Although the consent form was signed in one of them, the questionnaire part was not filled. In five of them, while the questionnaire forms were answered, the consent forms were unsigned. Although both forms were filled in completely, eight students could not participate in the experiment because they were not present at the school on the day of the study. The parents of four students did not allow their children to participate in the experiment.

Participants were recruited from two public schools and one private study center ($N = 109$, $n=53$ female, $n= 56$ male). The mean age of the participants was 8.39, ranging from 7 to 10 years. Participants were selected from the same public schools as in the second study but from different classes and students from the previous experiment. Data collection lasted from November 2021 to April 2022.

5.3.2. Stimuli

“*Stranger Things*” is a science fiction-horror series. The presented excerpts of the series for the experiment do not contain an element of horror. Specifically, it is focused on the third season because it has many product placements such as *Burger King*, *Reebok*, *Adidas*, *Sharp*, *Casio*, *Chevrolet*, and *Cadillac*. However, with salient logo visibility and verbal mention in the dialogue, *Coca-Cola* is the most prominent brand in the third and the seven episodes of season three. Thus, Turkish dubbed versions of these parts of the series were selected as stimuli.

Pre-adolescent and younger children have a say in 72% of the food and beverage products purchased in the family (Toomey & Francis, 2013). Especially, unhealthy food and beverage brands prefer product placements. In America, in 2011, *Coca-Cola* benefited from product placement ten times more than traditional advertising to reach the target audience, especially children (Beaufort, 2018).

Coca-Cola was chosen as the brand placement in this experiment; because the same brand was involved in both interaction conditions. Thus, differences that may occur due to brand familiarity between the conditions could be eliminated.

In the *no-interaction condition*, the character has no verbal or physical interaction with the placed product. In the scene, on a rainy day, two female characters are investigating a lifeguard girl working in the pool. While talking to a boy, there is a solely placed vending machine written *Coca-Cola* behind the characters (see Figure 5.1). This product placement seems for almost 20 seconds. This 20-second is presented in the middle of the 1 minute 39 seconds section to prevent primacy and recency effect on memory.



Figure 5.1. Example image of the presented scene to the participants in the *no-interaction condition*

In the *interaction condition*, one of the side characters in the series interacts physically with the placed product by using it. In the scene, two male characters are in a heated discussion about the *New Coke*, which was recently released to the beverage market in those days (see Figure 5.2). This scene would last almost 45 seconds. Similarly, this 45 second part would be presented in the middle of the 1 minute 39 seconds section to inhibit primacy and recency effect on memory.



Figure 5.2. Example image of the presented scene to the participants in the interaction condition

5.3.3. Procedure

Participants' consents were verbally obtained by giving this instruction to them: “*Now, we will watch an excerpt of a series first. After that, I will ask you a few simple questions about this episode we're watching. If you don't want to continue this study or don't want to answer my questions, feel free to let me know, and we will finish, okay?*”

It was asked whether there was a difference between the two pictures with product placement and without product placement as a warm-up exercise. *Adobe Photoshop* program was used in the preparation of the images which are shown in Figure 5.3.

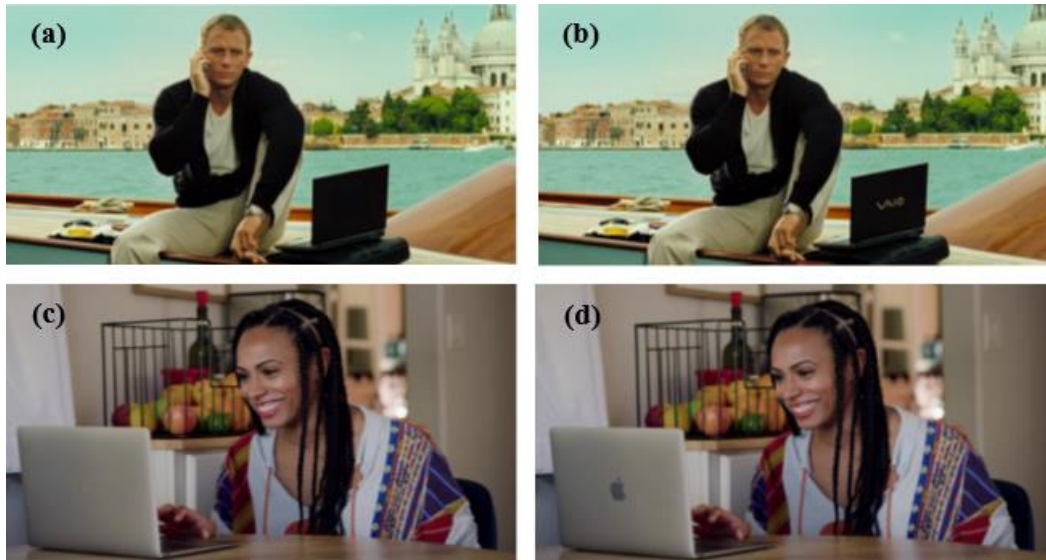


Figure 5.3. Images of warm-up exercise (a) without product placement, (b) with product placement, (c) without product placement, (d) with product placement

Participants were randomly assigned to two groups: *no-interaction* ($n=51$) and *interaction* ($n=58$). In the *no-interaction condition*, participants watched an excerpt in which the character had no interaction with the placed product. In these scenes, there was a placed vending machine written *Coca-Cola* behind the characters. Participants were exposed to this product placement for almost 20 seconds.

5.3.4. Measurement

5.3.4.1. Prior Exposure

At the end of the presentation, participants answered the following question: “*Have you ever watched this series? Do you remember?*”. The series' appeal to audiences aged 16 and over significantly reduced prior exposure to the stimulus of the participants.

5.3.4.2. Free Recall

Free recall was measured with the following question: “*So, what do you remember about this series we watched? Can you tell me?*”. As in the second study, leading questions were also used in this experiment.

In the no-interaction condition following questions asked to the participants.

- *What were the children doing?*
- *Is anything else you would like to add?*

- *Was there a drink vending machine behind the children?*
- *What was the drink vending machine?*
- *Was it a fizzy drink vending machine?*
- *What colour was it?*
- *Was it a coke vending machine?*
- *What was the brand of coke?*

Coca-Cola answers, given with or without leading questions, were coded as 1; while incorrect answers were coded as 0. Also, “*I don't know.*”, “*I couldn't remember.*”, and “*There was no vending machine.*” answers were coded as 0.

In the interaction condition following questions asked to the participants.

- *What were the children doing?*
- *Is anything else you would like to add?*
- *Was one of the children eating or drinking anything?*
- *What was he drinking?*
- *Was it a fizzy drink he drank?*
- *What colour was it?*
- *Was it coke?*
- *What was the brand of coke?*

Coke or *New Coke* were accepted as correct answers and coded as 1, while *Coca-Cola* or other brands were coded as 0.

5.3.4.3. Recognition Test

In the no-interaction condition, after the free recall test, the following question was asked to the participants: “*Only one of these four fizzy drink vending machines was in the series we watched. Can you remember which of the following drink vending machines you saw?*” (see Figure 5.4).



Figure 5.4. Presented fizzy drink vending machines in four-alternative forced-choice (4AFC) recognition memory test (a) Coca-Cola (b) Pepsi (c) Fanta (d) Sprite

As a manipulation check, another detail of the same scene was asked to the participants: *“There was a photo hung on the bulletin board in the TV series we watched. Show me which photo this is.”* (see Figure 5.5).



Figure 5.5. Presented photographs in four-alternative forced-choice (4AFC) recognition memory test

In the interaction condition, in the sequel of the free recall part, the participants answered the following question: *“Only one of these four fizzy drinks were in the TV*

series we watched just now. Can you remember which of the following drinks you saw?” (see Figure 5.6).

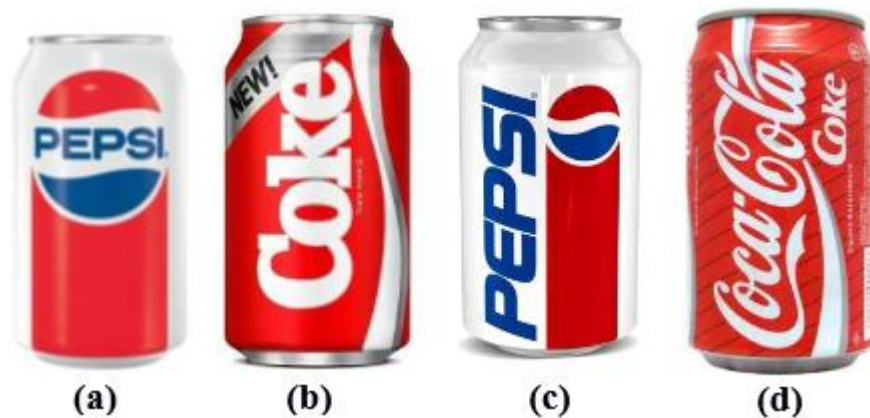


Figure 5.6. Presented fizzy drinks in four-alternative forced-choice (4AFC) recognition memory test (a) nostalgic *Pepsi*, (b) *Coke*, (c) *Pepsi*, (d) *Coca-Cola*

As distractors, *Pepsi*, the rival company of *Coca-Cola*, was preferred. Although the prominent colour is blue in *Pepsi*'s package design, the red colour ones were selected, as shown in Figure 5.6, to increase the similarity with the target product's appearance. Furthermore, whether the placed product was coded in detail by the audience was explored because there were two alternatives for each brand. Participants could code with a general brand name (*Coca-Cola*) or a specific design of the product (nostalgic design of *Coca-Cola*). Revealed findings might shed light on this topic.

As a manipulation check, the participants were asked which character had a physical interaction with the placed product: “Well, can you remember which child was drinking this fizzy drink?” (see Figure 5.7).



Figure 5.7. Presented *Stranger Things* characters in four-alternative forced-choice (4AFC) recognition memory test

5.4. Results

As can be seen in the Table 5.1, the great majority of the parents, 61.4 percent, reported that their children's daily screen exposure time was between one and three hours. 12.8 percent of the families, stated that their children are exposed to device screens for three to four hours a day. In addition, 3.6 percent of the families declared that their children spending five hours and more with devices with screen, in a day. Namely, 43 percent of the children spend more than two hours with screens on a daily basis.

Table 5.1. Screen time of the participants in the third experiment

<i>Screen Time</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>none</i>	3	2.8 %
<i>less than an hour a day</i>	12	11.0 %
<i>one to two hours a day</i>	47	43.1 %
<i>between two and three hours a day</i>	20	18.3 %
<i>between three and four hours a day</i>	14	12.8 %
<i>between four and five hours a day</i>	9	8.3 %
<i>between five and six hours a day</i>	2	1.8 %
<i>between six and seven hours a day</i>	1	0.9 %
<i>more than seven hours a day</i>	1	0.9 %
Total	109	100.0

It can be seen from Table 5.2, 75.2 percent of the parents stated that their children are exposed to television, tablets and mobile phone screens frequently in a day. 26.6 percent of the participants expose to the television screen frequently. This is followed by the tablet and mobile phone usage with 25.7 and 22.9 percent, respectively. Moreover, 16.5 percent of the participants are exposed to more than one device screen in a day.

Table 5.2. Most frequently used media tools of the participants in the third experiment

<i>Media Tool</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>mobile phone</i>	25	22.9 %
<i>tablet</i>	28	25.7 %
<i>computer</i>	9	8.3 %
<i>television</i>	29	26.6 %
<i>more than one media tool</i>	18	16.5 %
Total	109	100.0

The rate of using these devices for educational purposes in this age group is higher than the pre-schoolers group. For this age group, most of these devices, which are given in Table 5.2, are used for entertainment purposes (see Table 5.3). The great majority of the participants, 63.3 percent, use these devices for entertainment and 25.7 percent use for both purposes.

Table 5.3. Usage purposes of media tools in the third experiment

<i>The Intended Use of the Media Tool</i>	<i>Frequency</i>	<i>Percentage (%)</i>
<i>Education</i>	12	11.0 %
<i>Entertainment</i>	69	63.3 %
<i>For both educational and entertainment purposes</i>	28	25.7 %
Total	109	100.0

While 3.7 percent of the participants stated that they had watched this series before, 96.3 percent indicated that they had not watched it before.

In the recall memory test, 38.5 percent of the participants could correctly remember the brand in the product placement on the scene. 61.5 percent of the participants could not remember the brand in the product placement on the scene.

94.5 percent of the participants correctly answered the recognition memory test, which was used to check whether the audience watched the scene where the product placement.

5.4.1. Binary Logistic Regression Analysis

In the first logistic regression of third experiment, free recall was examined as dependent variable. If the participant recalled, it was coded as 1 and if not, it was coded as 0. The independent variables were interaction (no-interaction or interaction) and *Coca-Cola* familiarity (non-familiar or familiar). Before the analysis, extremely high correlations were tested and no problems were detected, the Spearman correlations between interaction and *Coca-Cola* familiarity was 0.07, $p = 0.48$. The model was not found to be significant, $\chi^2(2) = 2.09$, $p = 0.35$ (see Table 5.4). In the second logistic regression of third experiment recognition test was examined as dependent variable with the same independent variables. The model was found to be significant ($\chi^2(2) = 17.20$, $p < 0.001$) and fitted according to *Hosmer-Lemeshow* test ($\chi^2(2) = 0.55$, $p = 0.76$). Transition probability predicted by regression was 22%, $LL=102.6$, *Nagelkerke* $R^2 = 0.22$. Interaction variable was found to be significant predictors, $B = 2.04$, $W(1) = 13.66$, $p < 0.001$. The recognition probability of the interaction condition group is 7.72 times higher than no-interaction condition group, $exp(B) = 7.72$, $95\%CI = [2.61, 22.82]$. The statistics of second model of third experiment shown in Table 5.5 and model classified 76.1% of participants correctly.

Table 5.4. Results of a binary logistic regression on recall memory test for the third experiment (non-significant model)

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)
Interaction	0.57	0.40	2.04	1	0.15	1.78	0.81-3.90
<i>Coca-Cola</i> Familiarity	0.02	0.42	0.00	1	0.96	1.02	0.45-2.31

Table 5.5. Results of a binary logistic regression on recognition memory test for the third experiment

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)
Interaction	2.04	0.55	13.66	1	<0.001	7.72	2.61-22.82
<i>Coca-Cola</i> Familiarity	-0.40	0.51	0.61	1	0.43	0.67	0.25-1.83

While 76.1 percent of the participants could recognize the product placed in the scene during the recognition memory test, 23.9 percent could not (see Table 5.6). A significant portion of the participants who recognized the placed product in the scene, corresponding to 48.6 percent of all participants, belonged to the *interaction* condition.

Table 5.6. Recognition rate of the placed product according to the interaction conditions in the third experiment

	<i>Interaction Condition</i>	<i>No-Interaction Condition</i>	Total Frequency Percentage (%)
<i>Recognized Frequency Percentage (%)</i>	53 48.6 %	30 27.5 %	83 76.1 %
<i>Unrecognized Frequency Percentage (%)</i>	5 4.6 %	21 19.3 %	26 23.9 %
Total Frequency Percentage (%)	58 53.2 %	51 46.8 %	109 100.0 %

5.5. Discussion

Participants in the *no-interaction* condition were exposed to product placement for 20 seconds, while participants in the *interaction* condition were exposed to product placement for 45 seconds. Their exposure duration is different from each other. Findings should be considered with caution because of the duration difference between the conditions. On the other hand, in real life, in parallel with this experimental study, product placements that interacted with the character mostly have a longer duration

than product placements that have no interaction with the character.

While a few subjects on free recall of the scenes they watched, they emphasized Eleven character's bleeding of the nose and leg injury. This scene may have caused a negative connotation for the subjects who were between the ages of seven and nine. Children aged 6 to 12 have fears of physical danger and injury (Gullone, 2000). It was necessary to check whether both stimuli had a positive or negative effect on the emotional states of the subjects. It could be controlled with a mood scale or subject to a preliminary assessment of whether they are neutral before scenes were selected.

In contradistinction to Yang & Roskos-Ewoldsen's (2007) study, which included 15 movie scenes in total that are 5 movie scenes for each category; in this current thesis study, a total of 2 movie scenes, one for each condition, were used.

The food and beverage industry have spent a bomb on advertising (Matthes & Naderer, 2015). In parallel with rapidly increasing unhealthy food habits, epidemic of obesity in childhood has caused to notice of experts in several fields: nutrition and dietetics, ethic advertising (Charry, 2014; Matthes & Naderer, 2015; Royne et al., 2017).

In a study conducted with younger children aged between two and eight, recognition and recall memory of brand logos were measured (Valkenburg & Buijzen, 2005). The findings showed that although recall memory develops with age, children in the eight-age group still perform below 50 percent in brand logo recall. On the other hand, children in the same age group almost recognized all brand logos. It can be inferred that the recognition and recall memory follow different processing paths from each other. In the current experiment, *character-product interaction* was only a significant predictor for recognition memory but not on recall memory. A possible explanation for this finding might be differences in processing between recall and recognition memory. However, it should not be forgotten that when purchasing behaviour is considered, choosing the target product among many rival brands on the market shelves would be related to the recognition memory.

CHAPTER 6

GENERAL DISCUSSION

Law and Braun (2000) emphasized that product placement affected memory, but that did not mean that it also influenced choice behavior. In other words, a positive correlational relationship was not found between explicit and implicit measurements of product placement. In parallel with their study (Law & Braun, 2000), although a significant model on recognition/recall memory was obtained in the first two experiments of the current thesis, a model on the product choice could not.

Advertising literacy refers to a person's knowledge and awareness about persuasive intents of advertisements, their effects on consumer attitudes and behaviors, and traditional or non-traditional advertising means (Beaufort, 2018). In this current thesis study, *advertising literacy* information of the subjects was not received.

The warning "*Do not tell anything your friends who have not experimented yet about this study.*" might not work because the subject group in question was children and may even have been talked about more because we drew attention to this point. Considering that the participants may have given each other clues about the study, the question "*Do you have any information about this study?*" could be asked.

In the current thesis study, the gender of the subjects was taken in terms of demographic information. However, the gender factor was not considered an independent variable. Previous studies have found that boys are naiver to persuasive messages than girls (Chernin, 2008). On the other hand, in Beaufort's (2018) study, there is no moderation effect of gender on product selection.

Children, who usually watch entertainment content in an environment where they feel more comfortable, such as at home or cinema, were exposed to excerpts of a movie in a school environment such as in an empty classroom or the teachers' room in our thesis study. On the other hand, it should not be forgotten that the previous studies were carried out in school environments to ensure a large sample of a participant. However, it would be beneficial not to ignore this detail when it comes to the practical

implication of the current thesis study's results.

Although previous studies have shown that advertisements and product placements affect children's actual consumer behaviour, they have assumed that this effect would remain permanent (Arendt et. al., 2015). However, the opposite may also be the case. Although the first and second experiments of the current thesis study could not find any effect of product placement on choice behaviour, it cannot prove that such an effect would not occur over time. In this thesis study, a product choice task was given to the participants within a maximum of ten minutes after they were exposed to the audio-visual stimulus with product placement. However, perhaps the effect of product placement on choice behaviour would become apparent after a while, not within ten minutes. Therefore, future research may adopt a longitudinal study design to determine the long-term effects of product placements on product choice behaviour, which will be more functional for marketers and advertisers.

According to the information received from the parents in all three experiments, children prefer to use the computer at least compared to other media tools such as mobile phones, tablets, and television. For this reason, it was the right decision to get used to the media tool by doing a warm-up trial before starting the experiment. However, considering the children's media usage habits, another option was reflecting the stimulus from a television screen. Future studies may also study the possible effects of different media tools, are mobile phones, tablets, computers, and television, on product placement because the screen sizes and usage of all these media tools are different from each other.

Although meaningful models were not able to obtain with the analyses of product selection in the current thesis, verbal feedback can provide insight into future studies. For instance, the feedback received after the product selection task in the first two experiments reveals that the brand choice behaviour can be multi-dimensional. The economic status of the families may also affect the choice behaviour of the child participants. (For example, in the first experiment, “*My mother did not want to buy it because it was expensive.*” and in the second experiment, “*Because it is a little cheap. So that my family does not run out of money.*”).

Audience and potential consumers encounter product placements not only in the content of movies, series, and television programs but also in video games as well as

them (Naderer, Matthes & Zeller, 2018). Today, children and teenagers spend their leisure time on video games (Matthes & Naderer, 2015). Young people who spend a significant part of their pocket money buying these video games are seen as potential consumers in the sight of marketers (Matthes & Naderer, 2015). Hence, the advertising sector attempt in this area. In recent years, a considerable number of studies to gain insight into the effects of product placement in video games have been published (Gangadharbatla, 2016; Jeong et al., 2011; Lull et al., 2018; Martí-Parreño et al., 2017; Yoo & Peña, 2011). Three different types of stimuli were used in each experiment of the current thesis study. The first was the edutainment content, the second was the movie, and the third was the series. An additional experiment could be designed with the secondary and high school students using the video game stimulus. Thus, the effectiveness of product placement on various types of stimuli from preschool to adolescence could be examined comprehensively.

The data collection method of the current thesis study was individual and face-to-face interviewing. With the transition of schools to distance education, it was challenging to find the participants in this age group during COVID-19. Future studies may increase the number of participants in the experiments.

6.1. Future Direction

When children are the target audience of the product placements, it would be more plausible to address behavioural effects than can be measured by actual product consumption rather than attitudinal effects that can be measured by brand evaluations and purchase intentions. In the current thesis study, a measurement of the actual product selection behaviour could not be provided. Although it is hard to provide environmental conditions in practical terms, such as the market shopping scenario (Beaufort, 2018), a more externally valid study can be designed about the actual product selection behaviour in the future. For instance, with the developing *virtual reality* (VR) technology, the participants can experience market shopping in a virtual environment.

In the current thesis study, whether a detail was recognized or not asked about the part where the product placement was located to check whether the participant watched the scene where the product placement took place. Further experimental investigations might use an eye-tracking device as an instrument to provide detailed information

about the participants' eye movements, as used in their study by Spielvogel et al. (2020).



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APPENDIX 1 – Bilgilendirilmiş Veli Onam Formu

Sayın Veli,

Çocuğunuzun katılacağı bu çalışma “Ürün Yerleřtirmelerinin Çocukların Görsel Algıları Üzerindeki Etkileri” adıyla, Yaşar Üniversitesi Psikoloji Bölümü Dr. Öğretim Üyesi Ayşe Candan Şimşek danışmanlığında, Genel Psikoloji Yüksek Lisans öğrencisi Ayça Paksoy tarafından yürütölmekte olan bir tez çalışmasıdır. Çalışmanın amacı, ürün yerleřtirmelerinin okul öncesi ve okul çağı çocukların görsel algıları üzerindeki etkilerini incelemektir. Bu amaç doğrultusunda çocuğunuza içerisinde ürün yerleřtirmelerin mevcut olduğı bir video klip izlettirilecek ve ardından görsel hafıza testi uygulanacaktır. Çalışma yaklaşık olarak 5-10 dakika arası sürmektedir.

Araştırma okul yönetiminizin bilgisi ve izni dahilinde gerçekleşmektedir. Araştırmaya katılım tamamıyla gönüllölük esasına dayanmaktadır. Çocuğunuz çalışmaya katılıp katılmamakta özgürdür. Araştırma çocuğunuz için herhangi bir istenmeyen etki ya da risk taşımamakta olup kişisel rahatsızlık verecek sorular ve durumlar içermemektedir. Ancak, katılım esnasında sorulardan ya da herhangi başka bir nedenden ötürü çocuğunuz kendisini rahatsız hissederse cevaplama işini yarıda bırakıp istediğı an çalışmadan çıkabilir. Böyle bir durumda arařtırmacıya, çalışmayı tamamlamayacağını söylemesi yeterli olacaktır. Çocuğunuzun katılımı tamamen sizin isteğimize bağılıdır, reddedebilir ya da vazgeçebilirsiniz. Araştırmaya katılmama veya arařtırmadan ayrılma durumunda çocuğunuzun akademik başarısı, okul ve öğretmenleri ile olan ilişkileri asla etkilemeyecektir.

Çalışmada öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Araştırma sonucunda elde edilen veriler tamamıyla gizli tutulacak ve sadece arařtırmacı tarafından bilimsel amaçlar doğrultusunda deęerlendirilecektir.

Onay vermeden önce sormak istediğiniz herhangi bir konu varsa lütfen sormaktan çekinmeyiniz. Çalışma bittikten sonra da telefon veya e-posta ile ulaşarak soru sorabilir, sonuçlar hakkında bilgi alabilirsiniz.

Saygılarımla,

Arařtırmacı :
İletişim Bilgileri :

Bilgileri okuyup anladığımı ve soru sorma fırsatımın olduğunu onaylıyorum.

***Velisi bulunduğum
sınıfındaki 'in araştırmaya katılmasına
izin veriyorum.***

- * Lütfen formu imzaladıktan sonra çocuğunuzla okula geri gönderiniz.
- ** Lütfen çalışmanın güvenilirliği açısından çalışmanın amacını çocuklarınız ile paylaşmayınız.

Tarih: / /

İmza:

Veli Adı-Soyadı :

Telefon Numarası :

APPENDIX 2 – Velilere Yönelik Soru Formu – Deney 1

Çocuğunuzun doğum tarihini gün, ay ve yıl olarak belirtiniz./...../.....

Ekran Süresi

Çocuğunuz gün içerisinde cep telefonu, tablet, bilgisayar veya televizyon gibi ekranlı cihazlara ortalama ne kadar süre maruz kalıyor?

- Hiç
- Günde yarım saatten daha az
- Günde yarım saat ile bir saat arası
- Günde bir ile iki saat arası
- Günde iki ile üç saat arası
- Günde üç ile dört saat arası
- Günde dört ile beş saat arası
- Günde beş saatten daha fazla

*Bu soruya cevabınız hiç ise; lütfen marka aşinalığı sorusuna geçiniz.

Medya Aracı

Çocuğunuz aşağıda yer alan görsel medya araçlarından hangisini daha sık kullanıyor?

- Cep telefonu Tablet Bilgisayar Televizyon

Medya Aracının Kullanım Amacı

Çocuğunuz bu medya aracına (cep telefonu, tablet, bilgisayar, televizyon) hangi amaçla erişim sağlıyor?

- Eğitim (online derslere katılım, eğitsel içerikli videolar izleme)
- Eğlence (çizgi film izleme, oyun oynama)

Marka Aşinalığı

Çocuğunuz için aşağıda yer alan markalardan hangisinin kişisel hijyen ürününü (sabun, şampuan) evinizde kullanıyorsunuz ya da daha önce kullandınız? Cevabınız bu şıklardan herhangi biri değilse lütfen diğer seçeneğinde belirtiniz.

- Johnson's Baby

- Hipp
- Dalin
- Komili
- Dięer

*Lütfen doldurmuş olduęunuz soru formunu okula götürmesi için çocuęunuza veriniz.



APPENDIX 3 – Velilere Yönelik Soru Formu – Deney 2

Çocuğunuzun doğum tarihini gün, ay ve yıl olarak belirtiniz./...../.....

Ekran Süresi

Çocuğunuz gün içerisinde cep telefonu, tablet, bilgisayar veya televizyon gibi ekranlı cihazlara ortalama ne kadar süre maruz kalıyor?

- Hiç
- Günde bir saatten daha az
- Günde bir saat ile iki saat arası
- Günde iki ile üç saat arası
- Günde üç ile dört saat arası
- Günde dört ile beş saat arası
- Günde beş ile altı saat arası
- Günde altı saat ile yedi saat arası
- Günde yedi saatten daha fazla

*Bu soruya cevabınız hiç ise; lütfen marka aşinalığı sorusuna geçiniz.

Medya Aracı

Çocuğunuz aşağıda yer alan görsel medya araçlarından hangisini daha sık kullanıyor?

- Cep telefonu
- Tablet
- Bilgisayar
- Televizyon

Medya Aracının Kullanım Amacı

Çocuğunuz bu medya aracına (cep telefonu, tablet, bilgisayar, televizyon) hangi amaçla erişim sağlıyor?

- Eğitim (online derslere katılım, eğitsel içerikli videolar izleme)
- Eğlence (çizgi film izleme, oyun oynama)

Marka Aşinalığı

Çocuğunuz için aşağıda yer alan markalardan hangisinin çikolatalı şekerleme ürününü daha önceden satın aldınız? Cevabınız bu şıklardan herhangi biri değilse lütfen diğer seçeneğinde belirtiniz.

- M&M
- Bonibon
- Diđer
.....
- Çocuđuma çikolatalı Őekerleme ürünü satın almıyorum.

Evinizde aŐađıda yer alan markalardan hangisinin dizüstü bilgisayarını bulunmaktadırdı?

- SONY
- MACBOOK
- Diđer
.....
- Evimizde dizüstü bilgisayar bulunmuyor.

*Lütfen doldurmuş olduđunuz soru formunu okula götürmesi için çocuđunuza veriniz.

APPENDIX 4 – Velilere Yönelik Soru Formu – Deney 3

Çocuğunuzun doğum tarihini gün, ay ve yıl olarak belirtiniz./...../.....

Ekran Süresi

Çocuğunuz gün içerisinde cep telefonu, tablet, bilgisayar veya televizyon gibi ekranlı cihazlara ortalama ne kadar süre maruz kalıyor?

- Hiç
- Günde bir saatten daha az
- Günde bir saat ile iki saat arası
- Günde iki ile üç saat arası
- Günde üç ile dört saat arası
- Günde dört ile beş saat arası
- Günde beş ile altı saat arası
- Günde altı saat ile yedi saat arası
- Günde yedi saatten daha fazla

*Bu soruya cevabınız hiç ise; lütfen marka aşinalığı sorusuna geçiniz.

Medya Aracı

Çocuğunuz aşağıda yer alan görsel medya araçlarından hangisini daha sık kullanıyor?

- Cep telefonu Tablet Bilgisayar Televizyon

Medya Aracının Kullanım Amacı

Çocuğunuz bu medya aracına (cep telefonu, tablet, bilgisayar, televizyon) hangi amaçla erişim sağlıyor?

- Eğitim (online derslere katılım, eğitsel içerikli videolar izleme)
- Eğlence (çizgi film izleme, oyun oynama)

Marka Aşinalığı

Evinizde aşağıda yer alan gazlı içecek markalarından hangisini tüketirsiniz ?
Cevabınız bu şıklardan herhangi biri değilse lütfen diğer seçeneğinde belirtiniz.

Coca-Cola

Pepsi

Sprite

Fanta

Dięer

Evimizde gazlı iecek tketmiyoruz.

* Ltfen doldurmuř olduęunuz soru formunu okula gtrmesi iin ocuęunuza veriniz.

