Beyond the Double Tap

A two-phased study about current social media marketing practices, how they target adolescents and the extent to which social media post engagement and screentime predict Dutch adolescents' brand attitudes and loyalty

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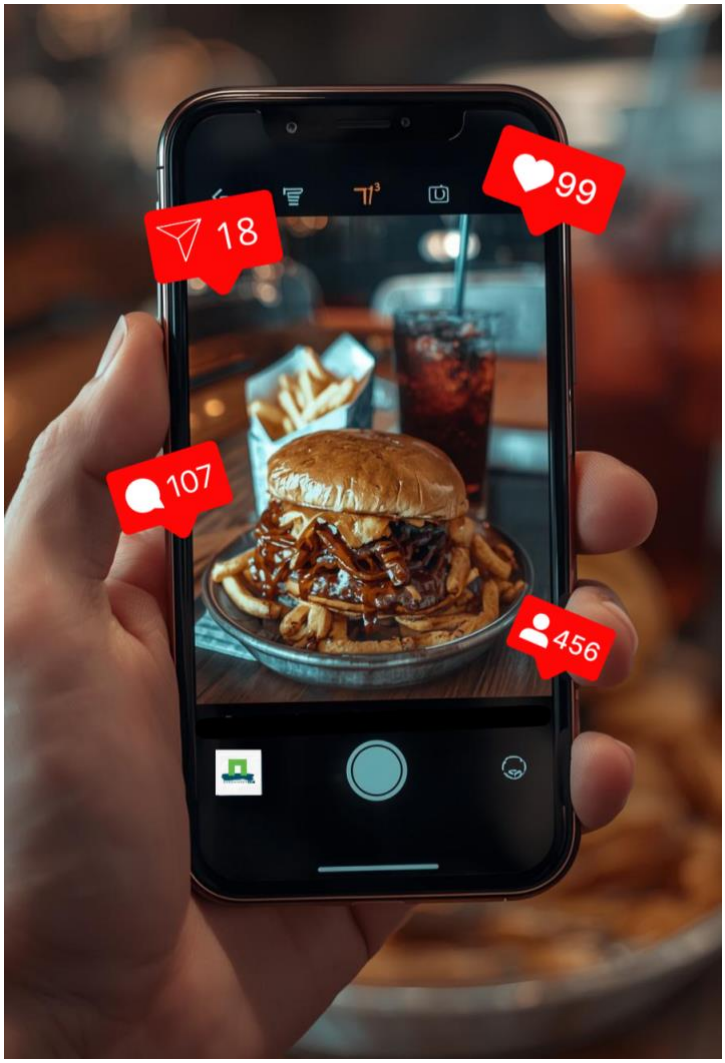

Figure 1 - Social Media Food Marketing

Abstract

This study employs of a two-phase research design to examine social media marketing practices of major food and beverage brands. Study 1 analyses the marketing techniques used in social media posts, with specific attention to targeting adolescents and the nutritional value of promoted products. Study 2 examines whether social media post engagement and screentime predict brand attitudes and brand loyalty among adolescent social media users. It was hypothesised that higher levels of social media post engagement and screentime would be associated with more positive brand attitudes and stronger brand loyalty.

Study 1 consisted of a content analysis of social media posts and advertisements, from brand-owned Instagram and TikTok accounts. Study 2 used questionnaire data from adolescent social media users and employed regression analyses to test the proposed relationships. The content analysis shows that current marketing practices are predominantly exposure-oriented.

Results from Study 2 indicate that social media post engagement (liking, sharing, commenting on posts and following accounts) can be a significant predictor of both brand attitudes and brand loyalty, thereby supporting the first hypothesis. Screentime showed mixed results: platform-specific screentime was not a significant predictor, whereas overall screentime was positively and significantly associated with brand loyalty.

These findings suggest a discrepancy between prevailing exposure-focused marketing practices and empirical evidence highlighting the importance of user engagement. The results imply that companies should focus on engagement-oriented strategies, since they seem to be more effective in shaping adolescents' brand attitudes and loyalty. Additionally, the findings support policy approaches that focus on regulating the content adolescents are exposed to on social media, rather than implementing prohibitions, in order to keep them safe online.

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Introduction

Unhealthy diets negatively affect adolescents' health, which has been deteriorating in recent years (Fan et al., 2017). In 2022, 50% of the Dutch population was overweight. This percentage is expected to rise to 64% in 2050 (RIVM, 2024). At some point, unhealthy eating habits might even lead to coronary heart diseases or an increase in diabetes type two (Willett et al., 2019). A recent report from UNICEF shows that 1 in 10 children all over the world are overweight (UNICEF, 2025). For a large part this has to do with the fact that adolescents are known to have an increased intake of fast food and energy drinks (Niemeier et al., 2006; Han & Powell, 2013). Eating and health-related habits are formed during this adolescent stage of life, since this period reflects a time in which there is a quick physical, mental and social development (Daly et al., 2021; Doggui et al., 2021).

When shaping these food-related consumption habits, digital marketing plays an important role, especially for adolescents who are continuously exposed to targeted online advertising. Companies nowadays have a rising interest in using social media marketing as a part of their digital marketing campaign (Trivedi & Malik, 2021). This type of marketing is mostly used to reach a younger audience (Aguiar & van Reijmersdal, 2018; UNICEF, 2025). Adolescents spend on average 5.5 hours per day on their phones of which 3.9 hours on social media (Van Helsdingen, 2025). This creates enough time to be exposed to social media marketing. Studies show that adolescents see on average over 9000 food marketing posts on social media per year (Potvin Kent et al., 2019). The UNICEF report shows that in a world-wide poll of 64000 young people, aged between 13 and 24, 75% of them recalled seeing advertisements for sugary drinks, snacks, or fast food (UNICEF, 2025). Most advertisements on social media platforms consists of nutritionally poor foods and are known to increase consumption of fried food, sweets and in general food that is high in energy and low in nutrients (Qutteina et al., 2019a; Fleming-Milici & Harris, 2020). These advertisements have been shown to influence food choice and food intake (Mc Carthy et al., 2022; Northcott et al., 2025).

Instagram and TikTok are two of the most popular platforms for these types of marketing since the content posted on these platforms is short, fun, trendy, creative and interactive (Mou, 2020). Social media marketing creates brand recognition and preference by using personalised, interactive and appealing advertisements (Hammouri et al., 2025). Major food and beverage brands are present on social media and create content that engages adolescents with products such as snacks, fast-food, and sugary or energy drinks (Fleming-Milici & Harris, 2020). A study from 2020 shows that 6.2 million adolescents worldwide followed brand accounts that advertised fast food, snacks and sugary drinks (Rummo et al., 2020). Companies can use many marketing techniques to gain engagement and attraction. The use of celebrities as influencers for example, and promotion of unhealthy products in general are commonly used. This causes adolescents to easily recall these types of advertisements and the promoted products (Kucharczuk, et al., 2022).

However, a knowledge gap remains regarding the strategies and tactics that work best for engaging a Dutch adolescent audience through these social media platforms. Study 1 therefore aims to examine in which way major food and beverage brands in the categories of fast food, snacks, and drinks target adolescents on social media, which marketing

strategies and tactics they use to influence this group, and what the nutritional quality is of the products that are promoted in the Netherlands.

Although Study 1 identifies the strategies and tactics used by these brands to target adolescents, less is known about how this age group engages with such content. Understanding these engagement patterns is crucial, as they are likely to depend on characteristics such as media use, screentime, brand attitude and loyalty. Study 2 builds on the 2020 Appetite paper by Fleming-Milici and Harris, which examined adolescents' engagement with unhealthy food and beverage brands on social media. By focusing on a Dutch sample of slightly older adolescents (aged 16-25), this study focuses on a group that is increasingly independent in their food choices, yet still vulnerable to impulsive decision-making (Pechmann et al., 2005). The aim of Study 2 therefore is to examine the extent to which social media post engagement and screentime predict Dutch adolescents' brand loyalty and brand attitude.

While prior research has explored the influence of social media marketing on adolescents globally, this study uniquely examines how major food and beverage brands, rather than specific food categories, operate in a Dutch context. By focusing on Dutch adolescents, the findings can inform regional tailored policies and guide national interventions and online safety communication campaigns. In addition, the findings allow the food and beverage brands to evaluate their current marketing campaigns. By contrasting existing campaign designs (Study 1) with empirical evidence on engagement, screentime, and their influence on brand loyalty and brand attitude (Study 2), the current research identifies areas where marketing approaches may require adjustment.

Theoretical framework

2.1 Digital marketing

Traditional marketing focused on segmenting consumers by demographic, geographic and behavioural profiles with tailored advertising strategies (Chakravarty & Sarma, 2022). The first hierarchy of effects model (AIDA), which emphasised consumers' needs more than solely enhancing sales (Barry & Howard, 1990), describes a shift in this type of marketing. This model follows the central route of the Elaboration Likelihood Model, which occurs when consumers have high motivation, ability, and opportunity to evaluate information (Carpenter, 2020).

When the digital economy emerged, social media reshaped consumer behaviour even further, creating online communities of customers who share their experiences with each other. This led to the new AISDALSLove-model, which adds search, (dis)like, share and love/hate stages to capture digital interactions (Wijaya, 2012; Chakravarty & Sarma, 2022). Whereas earlier models of the framework focused on sales or attitude formation, newer ones emphasise behavioural outcomes, such as repurchases, brand engagement or becoming loyal brand advocates (Chakravarty & Sarma, 2022).

This shift eventually enabled social commerce, where purchases occur on social media platforms. Social media marketing went beyond promotion and started on building awareness and trust and influenced purchase intentions (Rachmad, 2022). Social media platforms can now also be used in different areas, such as communication channels, for customer relationship management and cocreation (Li et al., 2023).

This new way of marketing emphasises for example product placement, influencer marketing, and real time engagement, rather than factors such as perceived product quality, and past experiences (Loitongbam et al., 2023). Real-time interactions with brands give consumers the idea of trust, and personalisation (Tugas, 2025). Authenticity through user-generated content and influencer marketing, as forms of electronic word-of-mouth, further strengthens brand credibility (Hayes, 2025).

2.2 Social media marketing

In contrast to consumers decades ago, most consumers now are faced with countless of brands and product options. This causes difficulties for marketeers in capturing consumers' attention and aligning with customer preferences (Abeysekera, 2016). When consumers are flooded with information, they make use of system 1 (automatic) thinking (Rottenstreich, et al., 2007; Dhingra & Goswami, 2024), which resonates with the peripheral route of the ELM. The peripheral route of the Elaboration Likelihood Model relies on superficial cues, such as attractive visuals, emotional appeals, and quick, memorable content, rather than detailed, logical arguments. This route occurs when consumer motivation is low and mostly favours emotional appeal (Carpenter, 2020). Social media marketing uses these types of superficial cues, through for example influencer collaborations, personalised content, user generated content, audience engagement and data analytics (Maitri et al., 2023).

This causes social media to extend the consideration and evaluation stages in consumer decision making (Lindsey-Mullikin & Borin, 2017), which require lighter but more frequent exposure to information on products and brands. Social media marketing strategies can involve social commerce, social content, social monitoring or social customer relationship management (Li et al., 2020). In the following chapter, several marketing strategies and tactics will be explored and explained.

2.2.1 Social media marketing strategic approaches

Businesses can use marketing to increase brand and product awareness and to increase market share. A company's plan on how to reach potential customers and make them into buyers is what is seen as a marketing strategy (De Silva, 2022). Marketing strategies used to consist of the 4P framework (product, price, place, promotion) but are now focused on client-centred capabilities. The following chapter explains a few of these marketing strategies.

Data-driven marketing strategy

E-commerce is transforming traditional marketing through data-driven decision-making, in which empirical data informs and refines promotional strategies (Berger, 2011; Yan et al., 2012). Modern marketing increasingly relies on large data sets and analytical tools to identify consumer needs (Rosário & Raimundo, 2021), including behavioural patterns, preferences and purchase histories, enabling companies to create highly targeted and personalised advertisements (Ishida et al., 2023; Abakouy et al., 2019). By leveraging data from demographics, social media interactions, and website traffic, marketers can improve predictions of campaign effectiveness and deliver content that resonates with specific audience at the right time, ultimately enhancing engagement (Rosário & Dias, 2023b; Kallevig et al., 2022; Länsipuro & Karjaluoto, 2021).

Brand partnership marketing

Brand partnership marketing is a strategy where companies form bonds with other brands in order to gain a combined value, such as increased brand awareness, expanded market reach, and access to new audiences (Khomenko & Pavlenko, 2022). Brands often apply this strategy to incorporate socially responsible marketing principles, such as charity work, sustainability and other social causes that help increase consumer trust (Holik & Sidielnikov, 2025). Within this strategy, there are several types of brand partnership. Co-branded communication for example is an advertisement or marketing campaign, where both brand logos are shown, but not necessarily on the product itself. Cross-sales promotion has to with discounts or bundle deals for products of the "other" brand. Co-branded experiences are events where both brands are mixed, and lastly co-branded distribution is when a store of a certain brand also sells products of another brand (Michel & Willing, 2020).

Multi-platform marketing

Multi-platform marketing is a phenomenon in social media marketing in which companies are involved in advertising across multiple consumer platforms. It urges strategic coordination of marketing campaigns in order to maximise reach and effectiveness (Yang, 2017). Multi-platform marketing exceeds traditional content

marketing where companies created reusable content that can be used on several platforms (Wagner & Boatright, 2019). The content of the advertisements might be distinctive on different platforms, but they create and send the audience a unified message (Yang, 2017).

2.2.2 Social media marketing tactics

Marketing strategies make sure companies know the bigger picture and the goal they work towards. Marketing strategies for social media for example often have the goal to create communication plans, monitor performance and to build engagement (Rosário & Dias, 2023a). However, in order to reach those goals, marketing tactics are used, which are specific activities that companies can perform (Chernev, 2019). In the following chapter, several of these marketing tactics will be explained.

Influencer marketing

Influencer marketing leverages popularity, credibility and reach of social media influencers to promote brands or products (Singh et al., 2023). Influencers range from celebrities, who were already widely known, to nano influencers, who are people with smaller but often highly engaged audiences (Campbell & Farrell, 2020).

Influencers embody important marketing functions, such as accessibility to an engaged audience, and being an established brand ambassador. Additionally, social media marketing can create the possibility for 24/7 responses and engagement which need to be handled and managed. Not all companies have the time an ability to do so, which is why some of them hand the control over to influencers (Campbell & Farrell, 2020).

The effectiveness of influencer marketing largely relies on parasocial relationships between the influencer and a follower. These relations are stronger when a user follows the influencer's account. Sponsored Instagram posts for example are perceived as more trustworthy and cause reduced levels of perceived freedom threat and counterarguing for followers, than non-followers. Next to that, these parasocial relations also enhance persuasive impact in case of brand evaluations and behavioural intentions (Breves et al., 2021).

User generated content marketing

User generated content is any form of social media content that is created by individuals themselves, not professional content creators, companies or influencers. It is shared through independent social media channels (Nagel, 2016; Santos, 2021). This tactic can be seen as electronic word-of-mouth marketing. User-generated content is earned marketing, which means that companies do not pay for this display of their products or services, but are still being promoted (Qutteina et al., 2019b).

Storytelling marketing

Storytelling marketing communicates information through narratives, depicting actors with motives in specific physical, social and temporal settings, often without directly showing the product (Pan & Chen, 2019; Padgett & Allen, 1997; Dessart, 2018). Consumers have the tendency to process and remember information better when it is

presented in narrative form, which makes stories a persuasive and memorable medium for brand communication (Mar et al., 2021).

The focus is on conveying brand values and evoking emotional responses to influence attitudes and achieve marketing objectives, fostering consumer identification with brands and generating emotional value (Pan & Chen, 2019; Gigauri & Djakeli, 2021; De Oliveira Júnior et al., 2022). Consumers namely respond positive towards advertisements that evoke emotional reactions (Dias & Cavalheiro, 2021). Such engagement is particularly evident on social media platforms, such as Instagram, where storytelling marketing is reflected in likes, comments and shares (Mavilinda et al., 2023).

Meme-based marketing

Meme-based marketing, a tactic that leverages internet memes to promote brands or products in a humorous, relatable or viral format, has emerged as an effective strategy for engaging younger audiences (Dutta et al., 2024). Memes are defined as images, videos or pieces of text that are typically humorous in nature, and are copied and spread rapidly by Internet users, often with slight variations (Lonnberg et al., 2020). This communicative flexibility allows memes to capture attention quickly, making them particularly suitable for Millennials and Generation Z, who tend to engage with short-form, highly visual content (Agrawal et al., 2024; Kumar et al., 2024).

Recognisable formats and styles are employed to increase engagement, foster brand affinity and encourage organic sharing among target audiences on social media platforms (Rathi & Jain, 2023; Agrawal et al., 2024). Memes are low-cost, high-impact tools to communicate brand identity and enhancing consumer interaction (Rolando, 2025) and its virality positively affects brand recall, which enhances repurchasing and recommendation (Mi et al., 2025). Two primary types of memes exist in marketing: brand-generated and user-generated. Brand-generated memes prioritise emotional and creative appeals, often using affiliative humour to foster light-hearted messages. In contrast, user-generated memes rely more on entertainment and informational appeals, frequently employing sarcasm. Both types combine multiple appeals, including emotional, informational, and creative elements (Agrawal et al., 2024).

Product display and promotion

Next to all the new types of marketing tactics that have been developed over the last decennium, the classic type of product advertising is also still used in social media marketing. Some brands simply post pictures of their products with the price, and state in the caption where a product can be bought. This can for example be a phrase as “now in stores” or “acquire it via the link in our bio”. This product placement is to exert an influence on potential consumers by promoting a brand through a non-typical marketing communication channel, such as social media platforms (Suková & Míková, 2022). Interestingly, advertisements where the price is displayed are effective at boosting instant engagement, however for premium brands that want to promote brand identity, advertisements without prices work better (Rosedi et al., 2025).

Product placement was a technique originally used in the film industry, where brands, logos or products were incorporated into various scenes to influence audiences on a

subconscious level (Sharma & Bumb, 2020). In modern marketing practices, this technique has been extended to social media platforms where products are featured incidentally within content whose primary focus lies elsewhere (Truong et al., 2024).

2.3 Why social media marketing works: motivational, cognitive and emotional mechanisms

Effectiveness of social media marketing depends on consumer buying behaviour (Goodrich & de Mooij, 2014). Many of the social media marketing strategies and tactics influence this behaviour and especially play a role in the consumers brand recall, recognition, appreciation, repurchase and recommendations of certain products. Social media marketing therefore, is a great way to influence overall brand preferences (Vergeer et al., 2025).

2.3.1 Motivational drivers of engagement

The uses and gratification theory helps explain how and why people use social media to satisfy their social and psychological needs. It identifies the motivations that drive users to engage with and participate on these platforms (Liu, 2015). Previous research shows several categories, that indicate that social media is used for entertainment, convenience and utility for widespread communication, increasing social interaction, finding social support, seeking and sharing information, relaxation, expression of opinion, and escaping from everyday life (Muhammad, 2018; Falgoust et al., 2022).

Building on these motivational aspects, it becomes clear that social media does not only serve users' personal needs but can also function as an effective medium for conveying messages. In this context, the entertainment overcoming resistance model offers valuable insight into how entertainment-based content can shape viewers' awareness and attitudes. This model suggests that embedding specific messages within entertainment can influence audiences more effectively than traditional persuasive approaches, as viewers tend to show less resistance to messages delivered within a narrative (Moyer-Gusé, 2008). Importantly, both hedonic entertainment (fun and enjoyment) and eudaimonic entertainment (high-order gratifications) have been shown to reduce resistance to persuasion and contribute to destigmatising outcomes (De Ridder et al., 2022).

2.3.2 Attention and interaction

The way customers engage with and comprehend marketing messages depends on their level of attention, and the distinctiveness of the content. At a pre-attentive level, individuals automatically register basic perceptual or semantic cues without conscious awareness toward a message. Advertisements that effectively capture focal attention through salience (colour, contrast, size, or motion), vividness (emotional, intensity, imaginary, or personal relevance of the context), and novelty (presence of unexpected element that attract notice) are therefore more likely to be consciously processed and remembered (Fennis & Stroebe, 2020). In visual social media marketing, this type of attention is therefore captured through appealing photos and videos that enhance engagement, by leveraging colours, layout, and imagery to increase brand recall,

perceived quality, and emotional connection with consumers (Kim & Lennon, 2008; Bhandari et al., 2018).

To stimulate such active engagement, social media marketing content should be both distinctive and interactive. One effective approach is the use of viral challenges, where users record themselves taking part in a challenge and share their participation on social media (Shah, 2020; Asher et al., 2024). These challenges particularly appeal to young audiences, who tend to engage for entertainment, social validation, and self-expression (Li, 2025). Other attention-capturing strategies include interactive posts such as polls or questions, as content requiring simple responses has been shown to enhance user engagement (Edney et al., 2018; Lu et al., 2021; Schreiner et al., 2021). Rhetorical questions, for example, can create memorable expressions, allowing advertisements to remain with consumers for some time after exposure (Jones & Rossiter, 2002).

Once consumers are actively engaged, the focus extends beyond mere exposure to advertisements to include behavioural interactions such as liking, commenting, and sharing (Schreiner et al., 2021; Mardhatilah et al., 2024; Rosli et al., 2024). Higher levels of such engagement are associated with stronger brand relationships, reflected in greater trust, commitment, and loyalty (Dessart, 2017). Moreover, consumers' emotional responses to social media marketing contribute to brand commitment. At the same time, perceived entertainment and aesthetic value enhance brand appeal, foster a sense of belonging, and increase perceived empowerment (Bashir et al., 2018).

2.3.3 Emotional and relational mechanisms

Another way for consumers to engage with social media messages is through parasocial relationships, which are nonreciprocal socio-emotional connections with media figures (Hoffner & Bond, 2022). Such relationships enhance the persuasive impact of media figures, influencing followers' behaviour, including their purchase decisions (Conde & Casais, 2023). Beyond promoting products, parasocial relationships increase perceived trustworthiness, which contributes to brand credibility and loyalty (Lacap et al., 2023).

This effect is rooted in endorser credibility, which is the degree to which an individual promoting a certain product or brand is perceived as trustworthy (Lacap et al., 2023). In line with this, source credibility, strongly affects how audiences accept messages and whether they are persuaded (Bogoevska-Gavrilova & Ciunova-Shuleska, 2022). Credibility is typically based on expertise, similarity, trustworthiness and attractiveness (Fatima & Billah, 2023; Sachu et al., 2025). Expertise and trustworthiness have the greatest influence on purchase decisions (Sachu et al., 2025). Importantly, an endorser does not necessarily need to have actual expertise, since perceived expertise is sufficient to increase trust in the product they promote (Wang et al., 2021).

Brand credibility, in turn, reflects a company's ability to demonstrate trustworthiness by delivering on claims and executing brand promises (Lacap et al., 2023). Strong brand credibility fosters brand loyalty, which can be defined as a high degree of bonding between a customer and a brand (Shin et al., 2019). The combined effect of brand and

endorser credibility has a significant and positive influence on consumer purchase intention and is positively related to favourable brand attitudes (Atta et al., 2024).

2.3.4 Repetition and exposure effects

Social media marketing is largely based on the mere exposure effect, which refers to the phenomenon where repeated exposure to certain things will increase people's preference for those things (Yagi et al., 2009; Van Dessel et al., 2017). Repeated exposure to branded products for example, creates preference orders between brands (Soga, 2018). This means that companies who frequently post on social media create a higher chance for consumers to be exposed to their messages, especially if they follow the account. This could increase brand awareness and brand preference. Since adolescents have an increased screentime compared to earlier times, it can be said that they are exposed more frequently to social media marketing messages. Studies showed that social media users are increasingly exposed to unhealthy food advertisements (Demers-Potvin et al., 2022).

The mere exposure effect also occurs when people do not actively engage with stimuli, that are provided in the marketing messages, or cannot recollect the initial exposure (Janiszewski, 1993; Donnellan, 2017). This is in line with the fact that previous research shows that exposure to social media marketing, even if it is accidental, influences brand choice, even if it is only viewed for five seconds (Humphrey et al., 2017).

Cognitive ease and comfort repetition enhance product or brand preferences, whereas excessive exposure can lead to diminishing returns (Donnellan, 2017). This is in line with hedonic fluency, since the ease with which something is adopted often causes positive affection. Additionally, the sleeper effect might play a role, where someone might think less of a product at first, because it is presented by an unreliable source, but over time, the source disappears in memory, and the initial negative stimulus disappears (Fennis & Stroebe, 2020).

However, consumers are presented with information overload on social media, so sometimes repeated exposure might not be enough for consumers, since it can also cause annoyance (Donnellan, 2017). When social media users are overexposed to certain information, they tend to unlike and unfollow brands (Chung et al., 2019). Eventually this overexposure might lead to a decrease in brand likability and trust (Ramadan, 2017). It is therefore important that advertisements are tailored to the target audience needs (Donnellan, 2017).

2.4 Synthesis and implications for the present research

As shown in the previous sections, marketing has evolved from traditional communication to a data-driven, interactive and community-based format. In social media marketing, companies combine strategic approaches such as data-driven targeting, brand partnerships and multi-platform coordination with specific tactics including influencer collaborations, user-generated content, storytelling, memes and product promotion. These strategies and tactics are essential for creating visibility,

engagement, and loyalty in an increasingly crowded and fast-paced digital environment. Despite the growing body of research, little is known about how these strategies and tactics are applied in a Dutch context, particularly by food and beverage brands promoting snacks, drinks, and fast-food products.

Social media marketing has been shown to be effective because it appeals to several underlying mechanisms. It fulfils motivational needs for entertainment, social connection, and self-expression. At the same time, it captures attention and familiarity through cognitive processes such as repetition and visual fluency. Additionally, it strengthens emotional and relational bonds through trust, credibility, and parasocial relationships. Together, these mechanisms explain why social media marketing can succeed in influencing not only attitudes but also actual consumer behaviour. In order to gain more insight on how companies use their social media marketing campaigns, Study 1 aims to examine how major food and beverage brands in the categories of snack, drink and fast-food products target adolescents and what strategies and tactics they use to influence them. Additionally, the nutritional value of the promoted products is analysed.

Limited evidence exists on how adolescents perceive and respond to these marketing messages. The aim of Study 2 is therefore to examine the extent to which social media post engagement and screentime predict consumers' brand loyalty and brand attitude.

Study 1

3.1 Introduction

Study 1 aims to examine how major food and beverage brands in the categories of snacks, drinks and fast-food target adolescents on social media, the strategies and tactics they use to influence them based on the theoretical framework of this research, and the nutritional quality of the product they promote in the Netherlands.

In the Netherlands, Instagram and TikTok are among the most popular social media platforms, with around 8 million and 4.3 million Dutch users, respectively. More than one third of these users are aged between 12 and 27 (31% on Instagram, 44% on TikTok), and over half of the content on both platforms is food related (Fingerspitz, 2025; Meeuwissen, 2025). This makes these platforms particularly relevant for examining the marketing of food and beverage brands.

Within social media marketing, several forms of advertising can be defined. The present study focuses on paid and owned marketing. Paid marketing is traditional marketing where a company buys exposure, such as promotional Instagram stories (Qutteina et al., 2019b). This type of marketing can be found in the Meta Ad Library. Owned marketing are marketing messages that companies post on their own social media account, making it visible to their followers as posts (Qutteina et al., 2019b). For the purpose of this study, paid content will be defined as “advertisements”, while owned content will be defined as “posts”.

A distinction can be made between posts and stories on social media (specifically Instagram), where a story is a photo or video that disappears automatically after 24 hours and are shown on the top of the Instagram homepage. Posts, by contrast, are permanent pieces of content that remain on the users’ profile and are shown on followers feed or on non-followers’ discovery-page, via for example hashtags and location (Dammy, 2024; Radulescu, 2024).

To examine the nutritional quality of the products shown in the advertisements or posts, the ‘Schijf van Vijf’ will be used. The products that appear in the posts or advertisements are compared with these Dutch dietary guidelines (Voedingscentrum, n.d.). This database consists of product that are seen as healthy.

3.2 Methodology

3.2.1 Study design

The study employed a content analysis of social media posts on Instagram and TikTok from brands promoting snacks, drinks and fast-food. While this type of content represents owned marketing, brands also pay for advertisements that appear in users’ feeds. Such paid marketing, which can be accessed via the Meta Ad Library, was also included in the analysis.

The analysis identified and categorised the marketing strategies and tactics used in social media advertisements of snack, drink, and fast-food brands. It also examined how frequently these strategies and tactics occurred across the sample and assessed engagement levels in terms of follower counts, likes, comments, and shares. This approach provided both interpretative and measurable insights into how social media marketing operated and how it may have influenced audience engagement.

3.2.2 Sample

The sample of the study consisted of 104 social media posts and advertisements of brands (N=8) that are active in the drinks, snacks and fast-food industry. The brands that were used in the study were Domino's, McDonalds, Doritos, Pepsi, Starbucks, Upfront Ben & Jerry's and Red Bull. Most of these brands can be found in the Marketing250, which is a list of the 250 most influential marketeers in the Netherlands for 2025 (Vlugt, 2024). The sample is built up by 15 posts and advertisements per brand, of which 5 were from TikTok, 5 were from Instagram and 5 were from the Meta Ad Library. In some instances, brands could not be found in the Meta Ad Library (4 brands) or did not have the minimum of five advertisements (1 brand). Therefore, the final dataset did not consistently include fifteen advertisements or posts per brand.

The dataset was created on the 6th of October 2025 when all the advertisements were screenshotted (pictures) or screen recorded (videos). This was done to be able to compare same-day data from all the brands. From all three sources, the five latest advertisements or posts were taken (if possible). The analysed posts were from brand accounts that were Netherlands-specific if possible, and duplicates were skipped, so they were not included in the sample. An example of the dataset can be found in Appendix A.

3.2.3 Procedure and data analysis

Before analysing the advertisements and posts, a codebook was drawn up (Appendix B). The codebook consisted of step-by-step data gathering ways using deductive codes. First, the brands' social media accounts were coded. The variables were the brands' account characteristics, such as its link, the platform (Instagram or TikTok), whether it was a Dutch account, the number of followers and the industry of the brand.

Secondly, the posts and advertisements were coded. The advertisements' or posts' characteristics were the engagement-related variables (number of likes, comments and shares), the platform it was posted on, and the date of the post. Next to that, the marketing strategies and tactics used in the advertisements or posts were determined using the following deductive codes: *brand partnership, multi-platform, influencer, user generated, storytelling, meme-based,* and *product display and promotion*. If the advertisement or post did not fit in any of the predetermined codes, it was coded as *other*. Since some advertisements or posts have a combination of strategies and tactics, up to three strategies and tactics could be filled in in the code sheet. Finally, for each post or advertisement, it was stated whether the product was in the Schijf van Vijf database. Products could also be 'Not found', or the analysis was 'Non applicable'. The latter happened when posts or advertisements did not show any consumable product.

To organise the data, Microsoft Excel was used to create code sheets. For the first analysis, the variables (characteristics) were listed in the columns, and the different brands were in the rows. For the second analysis, the advertisements or posts were in the rows, and the characteristics, strategies and tactics and the 'Schijf van Vijf' were listed in the columns. A drop-down menu was created for most of the variables to reduce the risk of typing errors or other human errors.

3.3 Results

3.3.1 Intercoder reliability

To ensure inter-coder reliability, the first 15 advertisements were coded by another researcher. Percentual intercoder reliability was performed. After only looking at the subjective codes (marketing tactics and strategies and the Schijf van Vijf), the result of the inter-coder reliability test was 82.9%. The calculation can be found in Appendix E.

3.3.2 General characteristics

In total 104 advertisements and posts were coded. For McDonalds, Domino's, Upfront and Pepsi, 15 items per brand were coded, for Red Bull, 14, since only 4 advertisements were found in the Meta Ad Library. For Starbucks, Doritos, and Ben & Jerry's, 10 items per brand were coded, since they were not visible on Meta Ad Library. All social media accounts were Dutch, except for Pepsi's TikTok account, which was worldwide.

3.3.3 Brand social media accounts

Table 1 shows the number of followers each brand has on Instagram and TikTok, and how many followers they have in total. Pepsi has by far the greatest number of followers on TikTok, which can be explained due to the fact that this is an international brand account. Overall, it can be said that brands with a higher follower account on TikTok, such as Domino's, focus more on a younger audience and short -form video content. Brands, that have a strong and balanced number of followers on both platforms indicate consistent popularity and broad appeal across age groups.

Table 1 - Follower Amount Brand Social Media Accounts

	McDonalds	Domino's	Starbucks	Ben & Jerry's	Doritos	Pepsi	Upfront	Red Bull
Instagram	154.000	29.300	32.000	25.300	10.400	6.498	233.000	614.000
TikTok	37.100	1.300.000	50.700	44.300	16.100	2.900.000[1]	147.500	1.600.000[2]
Total	191.100	1.329.300	82.700	69.600	26.500	2.906.498	380.500	2.214.000

[1] Pepsi's TikTok account is a worldwide account

[2] All Red Bull posts are in English, and they are international oriented

3.3.4 Marketing strategies and tactics

The content analysis focused on examining which marketing strategies and tactics were used by major food and beverage brands in a Dutch context. Table 2 shows the summed-up results of this analysis. An example of the filled in code sheet can be found in Appendix C. When looking at the total amount of times a certain strategy or tactic was used, it can be said that product display and promotion (*N*=74) was present most prominently. Least present was user-generated content (*N*=1). This might be for the same reasons as why influencer marketing is depicted so little (*N*=9), since this kind of content is often posted on people's personal accounts, and not on the brand accounts.

Brand partnership marketing was present 25 times (24%). Multi-platform marketing 46 times (44%). Influencer marketing 9 times (9%). Meme-based marketing was present 16 times (15%). Storytelling marketing was depicted 29 times (28%), and 12 advertisements did not really fit into any of the marketing strategies or tactics and were coded as other (12%).

Table 2 - Marketing strategies and tactics per brand

	McDonalds	Domino's Pizza	Starbucks	Ben & Jerry's	Doritos	Pepsi	Upfront	Red Bull	*Total*
Brand partnership marketing	0	7	1	0	7	5	0	5	25
Multi-platform marketing	5	9	0	2	3	5	10	12	46
Influencer marketing	0	0	1	0	4	0	3	1	9
User-generated content	0	0	1	0	0	0	0	0	1
Meme-based marketing	9	1	3	1	0	2	0	0	16
Product display and promotion	12	8	8	8	9	14	10	5	74
Storytelling marketing	1	6	2	3	0	1	8	7	28
Other	2	0	0	2	0	0	1	1	6

Table 2 provides insights into the diversity in marketing strategies and tactics that were used by the different brands. It can be said that Starbucks has the most diversity, since they only did not use influencer marketing in this sample. Red Bull follows, with a diversity between six marketing strategies and tactics. Following with slightly less diversity are McDonalds, Domino's, Ben & Jerry's, Pepsi and Upfront that each make use of five different strategies or tactics. Doritos has the least diverse marketing strategies and tactics, since they only use four types.

The fact that multi-platform marketing is used relatively often (*N*=46) has to do with the fact that the advertisements in the Meta Ad Library are broadcasted on different social media platforms.

Product display and promotion, multi-platform marketing, and brand partnership can all be used for creating exposure in social media marketing. Domino's, Doritos and Red Bull,

use all three techniques, and are therefore known to focus on exposure. Starbucks, Ben & Jerry's, Pepsi and Upfront use two of the three techniques, and are therefore somewhat focused on creating exposure.

Meme-based marketing, user-generated marketing, storytelling marketing and influencer marketing are mostly used to create engagement, since it is often humours, personal, or easy sharable content. In this sample, these types of marketing are not used that often, except for storytelling marketing. Starbucks uses the other three, but all the other brands only use two of these techniques. Doritos even only uses one of the techniques (influencer marketing).

3.3.5 Engagement measures

Table 3 - Average amount of Likes, Comments and Shares

	McDonalds	Domino's	Starbucks	Ben & Jerry's	Doritos	Pepsi	Upfront	Red Bull
Average amount of likes	3.826	363	691	46	73	2.823	14.796	10.353
Average amount of comments	55	16	22	2	3	100	149	72
Average amount of shares	730	21	245	1	1	659	1.358	576

Table 3 shows the average amounts of likes, comments and shares the brand received on their posts. These are all measures of engagement. Upfront had the highest number of average likes, shares and comments. The differences between brands were substantial, for example the differences between Ben & Jerry's who scored lowest on everything, compared to Upfront or Red Bull. The brands can be divided into three categories: snack brands, drink brands and fast-food brands. When looking at the engagement measures per type of brand, drink brands scored highest (Starbucks, Pepsi, Upfront, Red Bull), followed by fast food brands (McDonalds & Dominos) and last come the snack brands (Ben & Jerry's & Doritos).

Comparing Table 1 and Table 3 shows that follower amount does not necessarily say anything about the number of likes, comments and shares that brand posts got. Upfront for example scored fifth on the number of followers but scored highest across all three engagement measures. Pepsi, Red Bull and McDonalds scored, respectively, first, second and third on follower amount, and battled each other for second, third and fourth places when looking at the engagement measures. Domino's scored fourth on the number of followers, but scored sixth on the engagement measures, and Starbucks scored sixth on the followers, but fifth on the engagement measures.

3.3.6 Owned versus paid marketing

Table 4 - Owned versus Paid marketing

	Brand partnership marketing	Multi-platform marketing	Influencer marketing	User-generated content	Meme-based marketing	Product display and promotion	Storytelling marketing	Other
Owned	23	22	8	1	16	54	22	5
Paid	2	24	1	0	0	20	6	1
Total	25	46	9	1	16	74	28	6

When examining the different marketing strategies and tactics that were used in owned versus paid marketing it shows that owned marketing used brand partnership marketing, meme-based marketing, product display and promotion and storytelling marketing more often than paid marketing (Table 4). These techniques were used for creating exposure as well as engagement. Paid marketing however focused primarily on multi-platform marketing and product display and promotion, which are both techniques that were used for creating exposure.

3.3.7 Nutritional value

Out of the 104 advertisement and posts that were analysed, three (3%) showed food products that appear in the 'Schijf van Vijf'. These were the Domino's posts that show chicken drumsticks. The sauces that also appear in the post, do however not occur in the database. In total, 35 posts or advertisements (34%) were coded as non-applicable since they showed no (edible) products. Next to that, nine posts and advertisements (9%), were coded as not found since the Upfront pre-workout powders and carb gels are not a part of the database of the 'Schijf van Vijf'. They are therefore perceived as neither healthy nor unhealthy.

Lastly, 66 posts and advertisements (64%) were coded negatively for being included in the 'Schijf van Vijf', which means that these all depicted some sort of food or drink product that is not generally seen as healthy. Most of these foods were high in salt and saturated fats and had a lot of added sugars. This is in line with the definition of unhealthy food from the Dutch National Institute for Public Health and Environment (RIVM, n.d.).

3.4 Discussion

The study aimed to examine in which way major food brands in the category of snacks, drinks and fast-food are targeting Dutch adolescents on social media, the marketing strategies and tactics they use to influence this group, and the nutritional quality of the products that are promoted.

Findings show that most posts and advertisements rely on exposure-oriented strategies and tactics, such as product display and promotion and multi-platform marketing. Many marketing campaigns appear on multiple social media platforms, indicating a strong emphasis on reach and consistency. Additionally, there are quite some differences between brands, since Domino's, Red Bull and Doritos focus mainly on exposure while Starbucks and Ben & Jerry's focus mostly on storytelling.

It can be said that brands with the highest engagement (likes, comments, shares) are not necessarily those with the largest follower base. This suggest that exposure and brand familiarity play a larger role than follower count. However, brands that have a smaller follower base, do also score low on average engagement measures. This is in line with previous research that shows that a relationship between a brand and a consumer can weaken due to an excessive large follower count (Wies et al., 2022).

Lastly, findings show that almost all featured food and beverage products, are unhealthy, since 64% of the posts and advertisements showed food that was too high in salt, saturated fats and added sugars. Therefore, they do not appear in the 'Schijf van Vijf' database. From the 104 advertisements, 35 were not findable in the database, because they displayed products that were either not consumable, or were not known in the database. The actual percentage of unhealthy products therefore is 96%, since 66 out of 69 advertisements or posts depict products that are seen as unhealthy by the 'Schijf van Vijf' database. This indicates that exposure primarily concerns energy-dense, and nutrient poor foods, which is in line with previous research that show that this type of advertisements and posts are often focused on promoting unhealthy food (Northcott et al., 2025).

3.4.1 Strengths, limitations and future research

The study has several strengths. A key strength of the study is the fact that an intercoder reliability check was performed to check for clarity of the codebook and subjectivity. The intercoder reliability was 82.9%. Although this can be seen as a strong reliability, it is worth exploring an explanation for the differences in coding. The discrepancies may result from differences in how the 'user generated marketing' code was applied. The explanation of this marketing strategy is possibly interpreted differently by the second coder, since they used this code on almost all social media posts. For future research it is therefore important to clearly describe what the codes entail.

Additionally, the fact that all data was collected on a single day is a strength. It created a reliable source for this study because brand and engagement measures were easily comparable in the dataset. Next to that, the dataset itself is a strength of this study, since there were clear and specific inclusion and exclusion criteria.

However, the data collection also poses a limitation. Collection of the data on one day makes it difficult to generalise the outcomes. It is therefore recommended for future research to create a broader dataset, that keeps in mind the strengths of comparing brands, and the generalisability.

Another limitation has to do with the fact that not all brands were represented with 15 items in the dataset. This might create a distorted picture about the amount of marketing strategies and tactics used. Some brands were represented only by content they posted themselves on social media (owned marketing), while others were also represented by advertisements that were bought (paid marketing). Future research should focus on brand accounts that make use of paid and owned marketing, in order to be able to make a better comparison between the advertisements and posts.

Lastly, the fact that only accounts were taken into consideration that belong to brands, creates the possibility to overlook influencer and user-generated marketing. Future research should therefore also look at influencer accounts, and hashtags and mentions of the product, to find user-generated content. This type of content namely ensures earned marketing, which is the third form of marketing, next to paid and owned (Qutteina et al., 2019b).

3.4.2 Conclusion

The results of Study 1 show that the most used marketing strategy was multi-platform marketing, and the most used marketing tactic was product display and promotion. Brand partnership and storytelling marketing were used a moderate number of times, and influencer marketing, user-generated content and meme-based marketing were used least often.

Findings from Study 1 primarily highlight exposure-oriented marketing techniques. However, exposure alone provides limited insight into how adolescents engage with social media marketing content and the potential consequences of such engagement for brand attitude and loyalty. To address this gap, Study 2 explores the extent to which social media post engagement and screentime can predict Dutch adolescents' brand attitude and loyalty.

Study 2

4.1 Introduction

Study 2 builds conceptually on the findings of Study 1. These findings substantiated the selection of brands examined in Study 2. The brands that will be used in Study 2 are the four brands with the highest Dutch follower count. McDonalds, Domino's, Upfront and Red Bull will be taken into account. Even though Pepsi has a high follower count, the brand is not considered, since it does not have a Dutch TikTok account.

Over the last decade, Dutch children have been receiving their first mobile phone at an increasingly early age. In 2015, the average age at which children obtained their first phone was 13.2 years (De Leeuw, 2024). It has now become common for children to receive a smartphone between the ages of 8 and 10 (Nikkelen et al., 2025). Another trend visible among adolescents is an increase in screentime (Nagata et al., 2025). As a result, adolescents are being exposed to social media marketing more frequently and from a younger age onwards (Prakasha et al., 2023).

Social media is broadly used by manufacturers and producers to promote their products, interact with consumers and build brand awareness (Khanom, 2023). However, it remains unclear whether adolescents' engagement with such marketing differs between individuals. Key factors in this study are brand attitudes, which are defined as learned predispositions to respond (un)favourably towards brands (Lutz, 2018), and brand loyalty referring to the consumers' consistent choice for a particular brand (Hossain & Kibria, 2024).

Previous research also shows that the amount of engagement on a brand's social media posts positively influences customer-brand relationship facets, such as brand love, and customer-brand identification (Hamzah et al., 2021). Next to that, it is known that high social media engagement increases brand trust, commitment and loyalty (Dessart, 2017) and that customer brand engagement positively influences brand attitudes, especially when a customer actively searches information about a brand (Cheung et al., 2020). Hypothesis 1 of Study 2 therefore is:

Higher social media post engagement is expected to be associated with stronger brand loyalty and more positive brand attitude.

A higher screentime often goes hand in hand with higher exposure. This high exposure often has a positive influence on brand attitudes (Van Grinsven & Das, 2014). Additionally, it is known that people that use several screens (at the same time) and are therefore exposed to more advertising sources have a better brand memory, which results in positive brand attitudes (Segijn et al., 2017). In line with this, is the mere exposure effect, where people do not necessarily recall seeing certain brands or advertisements, but still have positive brand attitudes, because of the exposure to the brand's posts on social media (Matthes et al., 2007). Previous studies show that usage time, and therefore screentime, is a significant predictor of loyalty in general, and states that brand loyalty is influenced through posts with relevant content (Espuela et al., 2024). Hypothesis 2 of Study 2 therefore is:

Higher screentime is expected to be associated with stronger brand loyalty and more positive brand attitude.

The aim of Study 2 is therefore to examine the extent to which social media post engagement and screentime predict Dutch adolescents' brand loyalty and brand attitude, while controlling for age and gender.

4.2 Methodology

4.2.1 Study design

A quantitative cross-sectional survey design was used to examine how adolescents engaged with social media marketing from four of the food and beverage brands used in Study 1. The use of a questionnaire with 7-point Likert-scales allowed to collect data on a range of variables, including brand loyalty, brand attitude and social media post engagement. A cross-sectional design was considered appropriate to capture variations in these factors within a single time frame, identify potential associations between the variables, and explore relationships with individual characteristics, such as screentime and demographic information.

4.2.2 Participants and sample size

Participants were recruited via a combination of purposive and convenience sampling, where individuals who fit the criteria of the study, were selected to participate (Sedgwick, 2013). Participants were recruited via social media, WhatsApp and mail. Participants needed to be aged between 16 and 25, and to own and use a social media account. Since the study is about Dutch adolescents, participants needed to be able to read Dutch. In total, there were 212 responses on the questionnaire, however 60 questionnaires were not considered, due to the fact that people were screened out, or did not finish the questionnaire. This results in a participation rate of 72%.

4.2.3 Procedure

A recruiting message was sent to several WhatsApp groups and emailed to the researcher's former high school. Additionally, a short message and the link were posted on the researchers Instagram account (Appendix E). Respondents were asked to fill in an online questionnaire via Qualtrics (Appendix F). The recruiting message and questionnaire were in Dutch since the study is about Dutch adolescents. At the beginning of the questionnaire, the participants received a welcoming message. They were thanked in advance for their participation and were informed about the fact that the questionnaire would take around 8 minutes.

Before starting the questionnaire, participants were asked their informed consent. It was made clear that the participants anonymity would be guaranteed, that participants' answers were confidential and would only be used for this research, by deleting them after completing the study. Lastly, it was made clear, that if they would want to stop at any point, they could. If participants did not provide consent, they were excluded from the questionnaire.

When given consent, they proceeded to some questions about demographics, some screener questions and questions about general and platform specific screentime. Participants were screened out of the questionnaire, when they were younger than 16, or older than 25 and when they did not own or use a social media account. When they were not screened out, they were shown the names, logos and some examples of products from the four brands. Questions to measure brand attitude and loyalty were asked. This was followed by pictures of two social media posts per brand and questions about these posts. The questions tested participants' engagement with the social media post and brand. Every participant was asked the same questions about all four brands and two of its posts. After filling this in, participants were thanked again for taking part in the study and were told to email questions if they had them.

4.2.4 Measures

Outcome variables

The outcome variables were brand attitude and brand loyalty. Participants were shown the name, logo and some examples of products for the four brands derived from Study 1 and were asked to scale all the statements from (1) highly disagree, to (7) highly agree on 7-point Likert-scales.

Brand attitude was measured with two statements (based on Zhao et al., 2024): '*I like this brand*' and '*This brand fits well with my wants'*. Brand loyalty was measured with three statements: '*I buy products from this brand quite frequently'* (based on Tabaku & Zerellari, 2015); *'I would rather buy a similar product from another brand'* (based on Bobâlcă et al., 2012) and '*I would recommend this brand to others'* (based on Bobâlcă et al., 2012).

For the outcome variables, a Cronbach's alpha was measured, to test the internal consistency. The reliability analyses were conducted across brands, so for every question there were 608 items (4 brands x 152 respondents). The alpha score for brand attitude was .864. The Likert scales therefore showed good internal consistency, allowing both questions to be used in the computation of scale scores for the construct brand attitude in the regression analyses.

For brand loyalty the alpha score was .452. After deleting the second statement ('*I would rather buy a similar product from another brand'*), the score was .756, which means that the internal consistency was good. The second statement was formulated negatively, but even after recoding, the alpha stayed too low. Therefore, the question was not taken into consideration during the calculation of the scale score for the construct brand loyalty in the regression analyses.

Predictor variables

The predictor variables were social media post engagement and screentime. To measure participants social media post engagement, they were shown two posts per brand, derived from the dataset for the content analysis of Study 1. Four statements about the posts followed, which also needed to be scored on 7-point Likert scales, from (1) highly disagree, to (7) highly agree. Social media post engagement was measured with the

statements: '*Following this brand on social media (Instagram and/or TikTok) is a good idea'*; '*I would like this type of posts'*; '*I would share this type of posts'* and '*I would comment on this type of posts'*.

The reliability analyses to test internal consistency of these statements was measured across brands and was also measured through a Cronbach's alpha. The alpha score for social media post engagement was .892. The scales therefore showed good internal consistency and all four were used in constructing the scale score for the construct social media post engagement in the regression analyses.

Screentime was also asked. Participants needed to look at their average daily screentime over the past week and needed to fill in questions about their overall screentime, and their screentime specifically for Instagram and TikTok. Since the information about screentime differs per phone type, a distinction was made between IOS and Android operated phones. Participants were asked to indicate the operation system used in their phone and where then directed to different instructions explaining where to find their screentime information. They were warned not to close the tab or app the questionnaire was on, to make sure that their answers would not be deleted.

The screentime questions were multiple choice. For the overall screentime, participants were asked '*What is your average screentime of last week for one day?*' and the answer options were: 'less than 2 hours per day', '2-3 hours per day', '3-4 hours per day', '4-5 hours per day', '5-6 hours per day', '6-7 hours per day', and 'more than 7 hours per day'. For the platform specific questions, the questions were "*What is your average screentime for Instagram for one day from last week?*" and "*What is your average screentime for TikTok for one day from last week?*". The answer options were: '0-1 hour per day', '1-2 hours per day', '2-3 hours per day', '3-4 hours per day', and 'more than 4 hours per day' (based on Flemming-Milici & Harris, 2020 and Brunborg et al., 2022).

To examine the role of screentime, the original ordinal screentime variables were recoded into categorical variables with two and three levels. To assess the robustness of the findings, screentime was analysed using both a two-level and a three-level categorisation.

The two levels of the construct *overall screentime* were low and high screentime. Low screentime consisted of participants belonging to the categories of 'less then 2 hours per day', '2-3 hours per day', and '3-4 hours per day'. High screentime, consisted of the participants that belonged to the other four categories. For platform specific screentime, low screentime were participants that belonged to 'less than 1 hour per day' and the second group, high screentime, consisted of the other participants.

The three level analyses consisted of low, medium and high screentime. For overall screentime, low was seen as 'less than 2 hours per day' and '2-3 hours per day'. Medium screentime was '3-4 hours per day' and '4-5 hours per day' and high screentime were '5-6 hours per day', '6-7 hours per day' and 'more than 7 hours per day'. For platform specific screentime, low screentime was 'less than 1 hour per day'. Medium screentime were '1-

2 hours per day', and '2-3 hours per day' and high screentime were the categories '3-4 hours per day' and 'more than 4 hours per day'.

Covariates

Age and gender were included as covariates because previous research show that both variables can influence brand attitude and brand loyalty (Pleshko & Kassim, 2025). These variables were not included in the hypotheses, but were incorporated into the regression analyses as covariates, to control for their potential confounding effects.

Gender was measured with the question '*How do you identify yourself?*'. The answer options were: 'female', 'male', 'non-binary', 'I prefer not to say', or 'preference to self-describe'. For the last option, there was a possibility to manually fill in the (gender) identity.

Since age was also one of the exclusion criteria, people were asked to fill in their age ('*How old are you?*'). If their age was lower than 16-years old, or higher than 25-years old, they were excluded from the questionnaire.

Descriptive variables

Participants' demographic information was asked at the beginning of the questionnaire, as it is closely related to the screening questions. Participants education level was asked through the question '*What is the highest education level you achieved or are currently pursuing?*'. The answer options were: 'None or primary education', 'VMBO', 'MBO level 1 or 2', 'MBO level 3 or 4', 'HAVO/VWO', 'Bachelor' degree (University or HBO)' and 'Master's degree (HBO or University) or higher'.

Table 5 shows an overview of how the different constructs were coded during the analysis of the questionnaire. The questions can be found in Appendix F.

Table 5- Constructs with their Coding

Construct	Coding
Brand Attitude (Scale Score)	1 = highly disagree, 2 = disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = agree, 7 = highly agree
Brand Loyalty (Scale Score)	1 = highly disagree, 2 = disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = agree, 7 = highly agree
Overall Screentime	1 = low screentime: less then 2 hours per day, 2-3 hours per day, and 3-4 hours per day, 2 = high screentime: 4-5 hours per day, 5-6 hours per day, 6-7 hours per day, more than 7 hours per day
Screentime Instagram	1 = low screentime: less than 1 hour per day, 2 = high screentime: 1-2 hours per day, 2-3 hours per day, 3-4 hours per day, more than 4 hours per day
Screentime TikTok	1 = low screentime: less than 1 hour per day, 2 = high screentime: 1-2 hours per day, 2-3 hours per day, 3-4 hours per day, more than 4 hours per day
Social Media Post Engagement (Scale Score)	1 = highly disagree, 2 = disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = agree, 7 = highly agree
Gender	1 = Woman, 2 = Man
Age	16, 17, 18, 19, 20, 21, 22, 23, 24, 25 (no codes)

4.2.5 Data analysis

To examine the extent to which social media post engagement and screentime predict Dutch adolescents' brand loyalty and brand attitude, two multiple regression analyses were conducted. The first regression model was used to predict brand attitude. Brand attitude served as the outcome variable. Social media post engagement and screentime were entered as predictor variables. Age and gender were included as covariates to control for potential confounding effects. The second analysis predicted brand loyalty. Brand loyalty was used as outcome variable, and social media post engagement and screentime as predictor variables. Age and gender were again included as covariates.

To determine whether the items' reliability measured each construct, the internal consistency of the brand attitude, brand loyalty and social media post engagement scales are first assessed using Cronbach's alpha. When internal consistency was acceptable, scale scores were computed by taking the mean of the corresponding Likert-items.

For the predictor and outcome variables, means, standard deviations and Pearson's correlations were calculated if possible. These descriptive statistics provided an overview of the data distribution and preliminary relationships between variables came to light. The covariate and descriptive variables were analysed with frequency analyses, to provide an overview of the sample's characteristics.

The scale scores were used as the outcome and predictor variables in multiple regression analyses. Both predictors (social media post engagement and screentime) were entered simultaneously in each model, while age and gender were included as covariate to control for potential confounding effects. Regression coefficients, standard errors, R^2 values and p-values were reported for each model. Assumptions of regression, including linearity, normality of residuals and homoscedasticity, were assessed prior to interpreting the results. Homogeneity of variance across groups was checked using Levens's tests where appropriate.

4.3 Results

4.3.1 Sample description

The data of 212 participants was exported from Qualtrics to SPSS (version 31). Then, the cases from people that were screened out (*N* = 34), or people that did not finish the questionnaire (*N* = 26) were taken out, which left 152 respondents. Afterwards, the sample descriptives were calculated. Table 6 shows the frequencies and percentages of gender, age and education level within the sample and the mean and standard deviation of the variable age. The variable gender consisted of three groups, of which the third group, non-binary, consisted of three participants. Since the non-binary group was very small, it was not included in the regression analyses, as this could lead to unstable parameter estimates.

Table 6 - Demographic Characteristics of the Participants

	Frequency	Percentage	M	SD
Gender				
Female	108	71.1		
Male	41	27.0		
Non-Binary	3	2.0		
Age			21.8	2.3
16 years	3	2.0		
17 years	2	1.3		
18 years	10	6.6		
19 years	15	9.9		
20 years	14	9.2		
21 years	11	7.2		
22 years	32	21.1		
23 years	21	13.8		
24 years	28	18.4		
25 years	16	10.5		
Educational level				
None	1	.7		
VMBO	1	.7		
MBO1/MBO2	0	0		
MBO3/MBO4	5	3.3		
HAVO/VWO	33	21.7		
HBO-/University Bachelor	86	56.6		
HBO-/University Master or higher	26	17.1		

4.3.2 Screentime

The overall screentime of the participants in the sample can be seen in Figure 2. Most participants spent on average four to five hours per day on their phones, followed by three to four hours per day. The least amount of people uses their phones less than two hours per day.

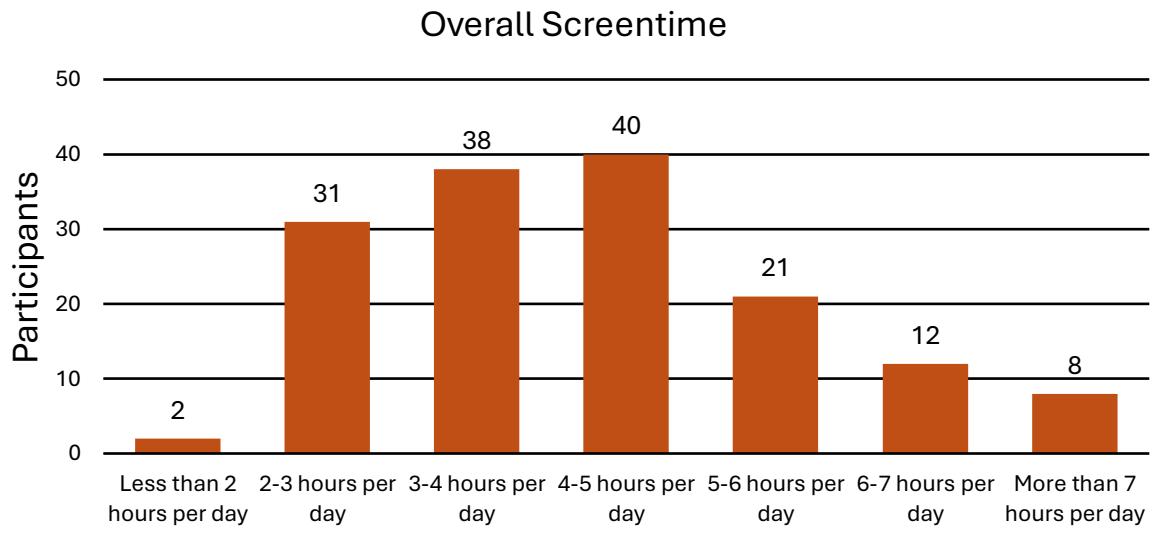

Figure 2 - Overall Screentime

Figure 3 shows the division of platform specific screentime among the sample. A little over one third of the sample did not use TikTok (*N* = 58). The Figure also shows that most participants spent either less than one hour per day, or one to two hours per day on the platforms.

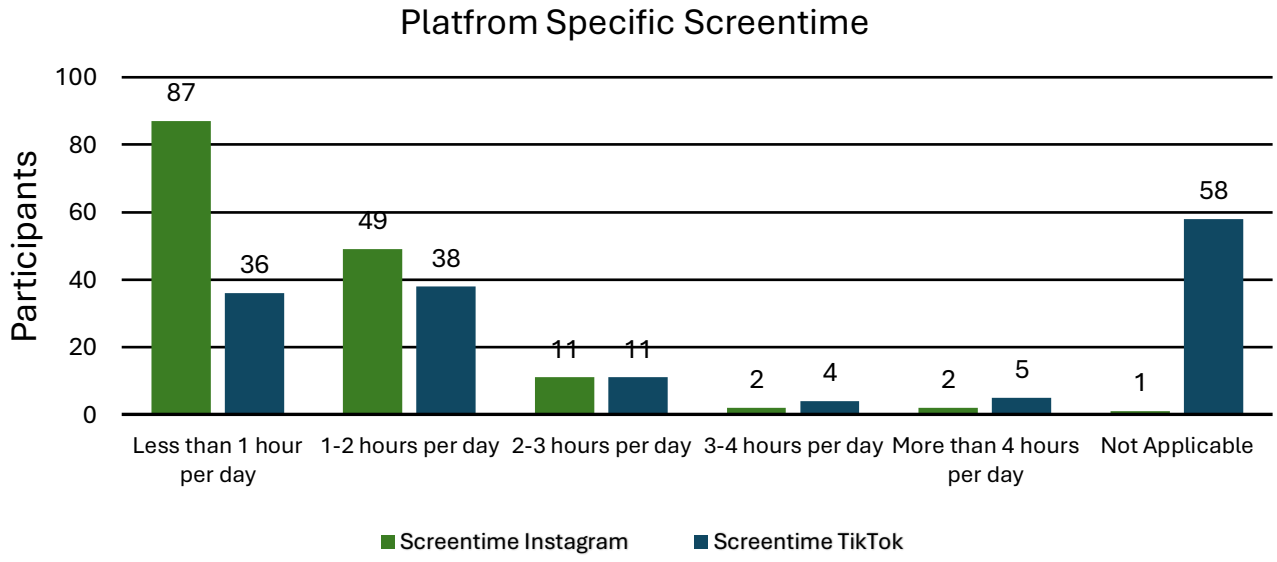

Figure 3 - Platform Specific Screentime

4.3.3 Correlation

Table 7 shows the means, standard deviations and the Pearson correlation between overall screentime, platform specific screentime, brand attitude, loyalty and social media post engagement.

Table 7 - Pearson Correlation Matrix for the Variables

	Mean	SD	N	1	2	3	4	5	6
1. Brand Attitude[a]	3.739	.968	152	1	.	.	.	.	.
2.Brand Loyalty[a]	3.166	.991	152	.770***	1	.	.	.	.
3. SM Post Engagement[a]	2.609	.758	152	.454***	.426***	1	.	.	.
4. Overall Screentime[b]	1.533	.501	152	.225**	.291***	.088	1	.	.
5. Screentime Instagram[b]	1.424	.496	151	-.070	-.040	.085	.083	1	.
6. Screentime TikTok[b]	1.617	.489	94	.060	.006	.020	.434***	-.195	1

[a]Scale Scores [b]Two Groups (Low vs High); **p<0.01 ***p<0.001

The Table shows that overall and platform specific screentime do not significantly correlate with social media post engagement. It also shows that brand attitude, did significantly correlate with brand loyalty, social media post engagement and overall screentime. The correlation between brand loyalty, brand attitude, social media post engagement and overall screentime were also significant. Platform specific screentime did not significantly correlate, except for TikTok screentime which significantly correlated with overall screentime. Next to that, Instagram screentime and TikTok screentime also negatively correlated with some of the other constructs.

4.3.4 Multiple regression analysis

The extent to which social media post engagement and screentime predicted Dutch adolescents' brand loyalty and brand attitude was assessed via two multiple regression analyses. Table 8 shows the model summary of both regression analyses.

Table 8 - Model Summary Regression Analysis

	R	R^2	Adjusted R^2	*F*	Sig. (F)
Model 1 - Brand Attitude	.520	.270	.219	5.305	<.001
Model 2 - Brand Loyalty	.520	.270	.219	5.300	<.001

The models yield Adjusted R^2's of .219 for both brand attitude and brand loyalty, with F (6, 86) = 5.305 for brand attitude and F (6, 86) = 5.300 for brand loyalty. Both models have a p <.001, indicating a strong and significant model.[3]

Two multiple regression analyses were conducted. Brand attitude and brand loyalty served as the dependent variables in the analyses. Social media post engagement and screentime were entered as the predictor variables. Age and gender were included as covariates to control for potential confounding effects. Table 8 shows the model summary and Tables 9 and 10 show the regression coefficients. Levene's tests were

[3] The model with three levels of screentime (Appendix G) was tested as a robustness check and led to a lower Adjusted R^2 (.153) and a weaker p-value (.002) for brand loyalty. Therefore, it was chosen to perform the regression analyses with two screentime levels.

performed to check the assumption of homoscedasticity. For brand attitude the assumption was met with $p = .754$ and for brand loyalty the assumption was met with $p = .683$. The assumption of linearity was checked by making scatterplots. The plots showed that the relationship between the predictor variables and the residuals was approximately linear and that the residuals were normally distributed. In addition, no clear funnel shape appeared, so the assumption of linearity was met.

Table 9 - Regression Coefficients for Brand Attitude

	B	SE	*β*	*t*	*p (Sig.)*
Overall Screentime	.205	.200	.105	1.022	.310
Screentime Instagram	-.165	.188	-.084	-.882	.380
Screentime TikTok	-.068	.215	-.035	-.319	.751
SM Post Engagement	.550	.120	.431	4.598	<.001
Gender	.295	.212	.133	1.393	.167
Age	-.063	.037	-.163	-1.678	.097
Constant – Brand Attitude	3.364	1.121		3.002	.004

Table 9 shows that social media post engagement is the only significant predictor of brand attitude ($\beta = 0.431$, t (86) = 4.598, p <.001).

Table 10 - Regression Coefficients for Brand Loyalty

	B	SE	*β*	*t*	*p (Sig.)*
Overall Screentime	.649	.213	.314	3.053	.003
Screentime Instagram	-.224	.199	-.107	-1.126	.263
Screentime TikTok	-.403	.228	-.196	-1.770	.080
SM Post Engagement	.515	.127	.380	4.059	<.001
Gender	.226	.225	.096	1.008	.316
Age	-.059	.040	-.144	-1.479	.143
Constant – Brand Loyalty	2.840	1.189		2.387	.019

Table 8 shows that the model explained 21.9% of the variance in brand loyalty. Table 10 shows that overall screentime and social media post engagement are significant predictors of brand loyalty. The regression coefficient of overall screentime was 0.649 and significant (t (86) = 4.598, p = .003). The regression with social media post engagement as predictor variable is also significant, F (6, 86) = 5.300, p < .001.

Hypothesis 1 was tested with social media post engagement as predictor variable and brand attitude and brand loyalty as outcome variables. The regression models for both outcome variables were statistically significant (p <.001), with social media post engagement predicting brand attitude ($\beta = .431$) and brand loyalty ($\beta = .380$). Hypothesis 1 was therefore supported, indicating that higher levels of social media post engagement are associated with more positive brand attitude and higher brand loyalty.

Hypothesis 2 was tested with overall screentime, TikTok screentime and Instagram screentime as predictor variables, with brand loyalty and brand attitude as outcome

variables. For brand attitude, none of the screentime variables were significant predictors ($p > .05$). Therefore, hypothesis 2 was not supported for brand attitude.

For brand loyalty, TikTok screentime and Instagram screentime were not significant predictors. However, overall screentime was a significant predictor of brand loyalty ($\beta = .314$, $p = .003$). Thus, hypothesis 2 was supported with respect to overall screentime and brand loyalty, suggesting that higher overall screentime is associated with stronger brand loyalty.

In all regression analyses, gender and age were included as covariates. Neither gender nor age significantly predicted brand attitude ($p = .167$ and $p = .097$ respectively) or brand loyalty ($p = .316$ and $p = .143$ respectively). This suggests that the main effects were probably not confounded by age or gender.

4.4 Discussion

Study 2 aimed to explore the extent to which social media post engagement and screentime predict Dutch adolescents' brand attitude and loyalty. It was hypothesised that (1) higher social media post engagement is expected to be associated with stronger brand loyalty and a more positive brand attitude and that (2) higher screentime is expected to be associated with stronger brand loyalty and more positive brand attitude. Study 2 builds conceptually on Study 1. The findings of Study 1 substantiated the selected subset of brands and variables to address the research question.

4.4.1 Social media post engagement

The findings suggest a strong and positive relationship between social media post engagement and both brand attitude and brand loyalty. This indicates that consumers who actively engage with brands' social media content, through likes, comments, shares and follows, are more likely to develop stronger loyalty and more positive attitude towards the brand. These results align with previous research which highlight the fact that high engagement leads to strong brand relationships, which include brand trust, commitment and loyalty (Dessart, 2017). Additionally, it is in line with previous research showing the influential role of interactive online content in shaping consumer perceptions (Hammouri et al., 2025). Practically, this underscores the importance of brands to foster meaningful engagement on social media, as such interactions appear to substantially enhance consumer-brand relationships (Hamzah et al., 2021).

4.4.2 Screentime

The analyses examining the relationship between screentime and both brand attitude and loyalty revealed a significant positive effect only for overall screentime and brand loyalty. The strength of this relationship indicates that general phone usage may play a meaningful role in creating loyalty towards brands. This suggests that individuals who spend more time on their phones in general are more likely to exhibit higher brand loyalty. This is in line with previous research which shows that usage time, and therefore screentime, is a significant predictor of loyalty in general (Espuela et al., 2024).

Additionally, social media platform developers design algorithms that prioritise content with which users have previously engaged. This repeated exposure, amplified by increased screentime, can enhance feelings of familiarity and preference through the mere exposure effect. Such feelings can often foster brand loyalty, even in the absence of extensive cognitive or emotional processing (Maguire, 2025).

In other words, passive exposure on social media may foster familiarity and loyalty-related responses but does not automatically translate into more positive brand attitudes. Brand attitudes arise from greater involvement, attention, understanding and emotional evaluations of marketing messages (Sun et al., 2024).

Simultaneously, increased exposure through frequent phone use may induce unintended negative outcomes. Repeated encounters with social media posts could also lead to irritation or fatigue, thereby undermining positive attitudes toward the brand (Fernandes & Oliveira, 2024). Overexposure has been shown to diminish brand likability and trust (Ramadan, 2017), occasionally resulting in unliking or unfollowing brand accounts and their posts (Chung et al., 2019). Collectively, these findings underscore the complexity of the relationship between screentime and brand attitude. Simple exposure is insufficient to generate positive attitude, and excessive exposure may produce adverse effects.

Research outside of the food and beverage context has shown that overall screentime is too broad a construct to meaningfully capture social media effects on adolescents' mental health. It typically lumps together social media use with other digital activities such as emailing, chatting and gaming, making it difficult to attribute any associations to social media specifically (Valkenburg et al., 2021). Instead, future research should move beyond overall screentime measures and focus on the content and quality of adolescents' social media interactions, since those appear to be more meaningful than total time spent on a phone. This can, for example, be studied using mock social media platforms or by analysing screenshots.

Another adaption for using screentime in research is when focusing on platform specific measures. In the current study, regression analyses revealed a negative direction for both Instagram and TikTok screentime effects on brand attitude and loyalty. This trend may stem from short-form content promoting habitual scrolling over deliberate brand evaluation (Tian et al., 2023). Although, non-significant, the findings offer a promising foundation for future research. For instance, a randomized experiment could assign adolescent participants to low versus high social media use conditions over a span of several weeks. Pre- and post-experiment brand attitude and brand loyalty can be measured through Likert-scales. Researchers should track moderators, such as content type (paid/owned/earned) and covariates such as gender, age, and baseline social media use to isolate effects.

4.4.3 Strengths and limitations

A key strength of Study 2 is that it builds on Study 1 through the use of stimulus material that was based on the content analysis. This makes the findings of Study 2 more realistic, as adolescents' engagement and attitudes are examined in response to social media

marketing content that reflects content they encounter with in real-world online environments.

Another strength of this study is the reliability of the measures for brand attitude, brand loyalty and social media post engagement. The Likert scales were tested with a Cronbach's alpha that resulted in trustworthy measures with a relatively high internal consistency. Additionally, the robustness of the findings was explored by testing different operationalisations of screentime (two versus three categories). This made it possible to assess whether the results were consistent for different model specifications. Lastly, by including age and gender as covariates, the analyses account for basic demographic differences, increasing confidence that the observed associations are not driven by these factors.

The study however also has some limitations, the first being the research sample. The sample consisted of 152 participants, of which 108 were women. Next to that, the participants were mostly 22 to 24-years-old. The sample size, the gender and age division may limit the applicability to the general population. Future research needs to study a larger sample size, with a more equal division of gender and age, in order to improve generalisability.

Another limitation is that the screentime variables are self-reported, which might cause the answers to be subject to the social desirability bias (Stodel, 2015). Although participants were asked to look up their screentime on their phones, it is possible that participants still guessed their screentime or found it to be too confronting and therefore gave a socially desirable answer. It is therefore impossible to say with certainty whether the answers were based on the truth. Future research therefore should find ways to check this data, by for example asking for screenshots, or using mock social media platforms to track screentime.

Overall discussion

The main aim of the present research was to find out which social media marketing strategies and tactics major food and beverage brands use to target Dutch adolescents, and to assess the extent to which social media post engagement and screentime predict their brand attitude and brand loyalty.

Taken together, the two studies provide complementary insights into both the marketing practices of major food and beverage brands on social media and adolescents' responses to these practices. Study 1 shows that brands primarily rely on exposure-oriented techniques, such as multi-platform marketing and product placement and promotion. This aims at reaching a large number of young users quickly and repeatedly. This suggests a strong focus on visibility and reach rather than on deeper forms of interaction.

Building on this, Study 2 examined whether such exposure translates into adolescents' brand attitude and loyalty. The findings indicate that mere exposure, reflected in screentime, is not sufficient to shape brand attitude. Instead, active engagement with brand content on social media plays a central role. Adolescents who like, comment on, share brand content or follow brand accounts, show more positive brand attitude and stronger brand loyalty.

Together, these results suggest that social media marketing becomes particularly influential when adolescents move from passive exposure to active engagement.

5.1 Strengths, limitations and future research

In addition to the strengths and limitations of each individual study, the overall research also encompasses its own distinct strengths and limitations.

A key strength of this research lies in its multiple-method design, which integrates a content analysis of marketing techniques with an examination of engagement and screentime, as well as their respective effects on brand attitude and loyalty. This comprehensive approach ensures that the individual studies form a conceptually coherent research program. Moreover, the research holds dual relevance, as its findings not only inform regional policy considerations but also provide practical insights for companies operating in social media marketing. By focusing on adolescents as a distinct and potentially vulnerable population, the research further contributes to a nuanced understanding of how marketing practices influence younger audiences.

A key limitation of the present research is its cross-sectional design, which precludes causal conclusions regarding the relationships between marketing techniques, and the effects of screentime and engagement on adolescents' brand attitude and loyalty. Future studies could address this through longitudinal research, whereby the same participants are tracked over multiple time points to measure changes or through experimental research, such as exposing participants to varying marketing content and measuring immediate effects.

Another limitation concerns the generalisability of the findings. Although this issue was addressed in the individual studies, the combined results remain context specific. The research focused on a limited number of platforms (TikTok and Instagram) and relied on relatively small, non-representative samples, which restricts broader applicability. Future research should therefore include more diverse samples and examine marketing practices across a wider range of platforms. Additionally, future research should examine different types of content, such as user-generated and influencer marketing, which typically appear on individual rather than brand accounts.

Future research might provide valuable insights to better understand the drivers of social media post engagement, as well as how different forms of engagement (liking, commenting on, sharing, and following) influence adolescents' choice behaviour and, ultimately, their health. Importantly, future research should take into account that not all adolescents respond to marketing messages the same way. This depends on factors such as age, gender, and self-regulation levels (Massar & Buunk, 2013; Harris & Fleming-Milici, 2019).

Additionally, future research could further examine the effects of social media post exposure on adolescents' brand attitude and loyalty. Although the current research (Study 2) did not find a significant relationship between screentime and these outcomes, it remains important to investigate the conditions under which exposure may influence brand attitude and loyalty. Especially since the findings from Study 1 show that brands focus on exposure-oriented marketing techniques. It might therefore be interesting to explore the effects of overexposure, when repeated marketing content may begin to elicit negative tractions such as annoyance.

Future research could also, for example, consider the role of algorithmic components in adolescents' exposure to social media marketing for unhealthy food and beverages. Social media users' engagement is tracked, and based on their likes, comments, shares and the accounts they follow, new personalised recommendations are generated (Qizi, 2025). This results in a personalised feed, which causes social media users to only see a select set of content, a phenomenon commonly referred to as a filter bubble (Shcherbakova & Nikiforchuk, 2022).

The present research shows that unhealthy food and beverage brands mainly focus on maximising exposure, and that engagement is crucial for retaining social media users. This, combined with algorithmic personalisation, raises concerns regarding adolescents' well-being. Engagement with unhealthy food-related social media content may not only influence brand attitude and loyalty but may also indirectly increase exposure through algorithmically personalised feeds. This creates self-reinforcing cycles of engagement and exposure.

Such mechanisms may disproportionately affect adolescents, who are in a critical phase of developing eating patterns but are often less focused on by policy makers than younger children. Previous research expressed concerns that this lack of focus may contribute to unhealthy dietary decisions and increased obesity rates (Montgomery et al., 2011).

5.2 Practical implications

The discrepancy between the findings of Study 1 and Study 2, has important implications for companies' marketing practices, but also raises concerns in the context of public health. The engagement that was measured in Study 2 entails active interactions with social media content from food and beverage brands on social media, by liking, commenting on and sharing this kind of content. Additionally, it is known that 6.2 million adolescents worldwide follow brand accounts that advertised fast food, snacks and sugary drinks (Rummo et al., 2020).

5.2.1 Implications for companies

From a managerial perspective, the findings provide guidance for marketing practices. Current exposure-focused marketing techniques (Study 1) may not be the most effective in influencing adolescents' brand attitude and loyalty. Investing in engagement-oriented strategies may be more effective and allow companies to allocate resources efficiently.

For companies, this implies that marketing efforts should shift toward creating content that encourages engagement (liking, commenting on, sharing or following). Brands should focus on interactive posts, opportunities for the audience to comment or share the content, and strategies that foster ongoing interaction with the brand, such as meme-based marketing, storytelling marketing and influencer marketing. These tactics and strategies are often used to create engagement, since they are emotional, relatable and easy to share. These practices seem more likely to be effective than focusing solely on exposure.

5.2.2 Implications for policy, regulations, and education

These insights also offer opportunities for public health campaigns and educational purposes. Interactive social media content can enhance awareness, promote better information retention and drive behavioural change, as engagement demands greater attention and understanding (Sun et al., 2024).

At the same time, engagement with this type of unhealthy social media content may contribute to the normalisation of these products in adolescents' everyday lives and strengthen preferences for energy-dense and nutrient poor food (Qutteina et al., 2019a; Fleming-Milici & Harris, 2020). Since engagement is known to be positively and significantly associated with brand loyalty, this could lead to long-term loyalty towards these unhealthy brands. Consequently, exposure to unhealthy food advertising may increase adolescents' likelihood of purchasing these products, thereby contributing to unhealthy dietary patterns (Mc Carthy et al., 2022 & Northcott et al., 2025).

The findings of the present research are relevant for ongoing policy discussions in the Netherlands. The Dutch government has been working on a new campaign, to increase awareness among parents and guardians of safe phone use for children (Ministerie van Volksgezondheid, Welzijn en Sport, 2025). As young people are getting phones at an increasingly early age, it is important to establish rules or regulations on how they should use them. While policy often focuses on reducing screentime, the present research suggests that limiting screentime alone might be insufficient.

Instead, regulation of commercial content to which adolescents are exposed appears to be a more targeted approach. Study 1 shows that companies actively seek to maximise exposure to their advertisements, while Study 2 indicates that engagement is significantly associated with brand loyalty and brand attitude. This aligns with previous research showing that initiatives to improve children's online safety increasingly focus on content regulation rather than screentime reduction (Köhler-Dauner et al., 2025). Consequently, focusing on the content to which adolescents are exposed and applying regulation to such content appears to be a logical and effective strategy for enhancing adolescent safety on social media.

5.3 Conclusion

Adolescents spend substantial time on their smartphones and are repeatedly confronted with branded food and beverage content, much of which promotes unhealthy products. While exposure alone does not consistently predict brand attitude, adolescents' online behaviour does matter, since active engagement with social media posts, such as liking, commenting on, sharing posts or following accounts is strongly associated with more positive brand attitude and stronger brand loyalty in the present research.

Engagement appears to be a key mechanism through which social media marketing influences adolescents, as active interactions heighten content salience and memorability. These findings have practical implications for companies and policymakers. For companies the results show that focusing on engagement-oriented marketing practices might be more effective than focusing solely on maximising exposure. For policymakers and health interventions, the study underscores the importance of regulating the content adolescents encounter on social media, to safeguard their well-being.

Overall, this research provides unique insights into how social media marketing interacts with adolescents' online behaviour, highlighting the significance of engagement as a pathway through which marketing can shape attitude and loyalty.

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Appendix

Appendix A – Example of the dataset

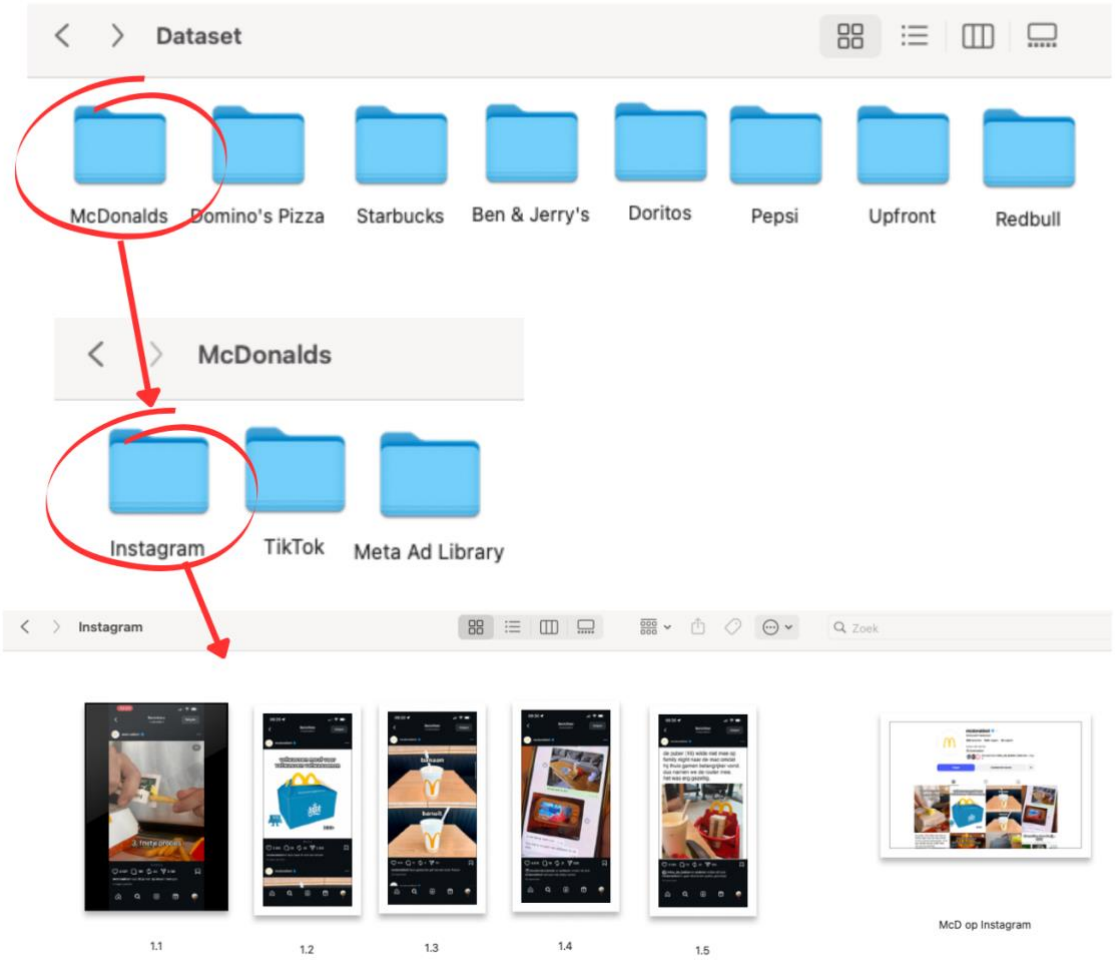

Figure 4 - Example of the Dataset (McDonalds)

Appendix B – Codebook

The research aim of this content analysis is *to examine in which way major food brands in the category of fast food, snack, and drinks are targeting adolescents on social media, and the marketing strategies and tactics they use to influence this group, and the nutritional quality of the products that are promoted*.

Analysis 1 – Brands

Selecting which brand social media accounts must be coded:

- The Instagram and TikTok accounts of the eight brands that were mentioned in the report were coded.
- Preferably the Dutch account of the brands was coded. If this did not exist, the European, or eventually the worldwide account was coded.

Step 1: Brand social media account on **Instagram** characteristics

- State the brand name
- State the link to the account
- State if the account is Netherlands only (Yes/No, namely European/No, namely worldwide)
- State the number of followers
- State the industry of the brand (snack, drink, fast-food)

Step 2: Brand social media account on **TikTok** characteristics

- State the brand name
- State the link to the account
- State if the account is Netherlands only (Yes/No, namely European/No, namely worldwide)
- State the number of followers
- State the industry of the brand (snack, drink, fast-food)

Table 11 - Codebook Brands

Code	Notation	Elaboration
Brand social media account		
Brand name		
Link	Link to the social media account	It is important to provide the link, so that other coders or researcher can find the accounts.
Netherlands only	Yes, No, namely Europe, No, namely worldwide	
Follower amount on 06/10/2025	##	This is the number of followers the brand account has on the day that the dataset was created.
Industry	Snack, Drink, Fast-food	Snack = Ben & Jerry's & Doritos Drink = Pepsi, Starbucks Upfront & Red Bull Fast food = McDonalds & Domino's

Analysis 2 – Advertisements

Selecting which advertisements must be coded:

- The five latest posts on (preferably) Dutch Instagram accounts, excluding the 'pinned' posts must be coded.
- The five latest posts on (preferably) Dutch TikTok accounts, excluding the 'pinned' posts must be coded.
- The five latest advertisements that can be found in the Meta Ad Library must be coded.
- Duplicates must be skipped, and posts or advertisements that are not in Dutch or English must not be coded as well.

Step 1: Advertisement characteristics

- State the advertisement ID (1.1-8.15)
- State the link to the advertisement/post
- State the source of the advertisement/post (Instagram, TikTok, Meta Ad Library)
- State the number of likes
- State the number of comments
- State the number of shares
- State the date of posting

Step 2: The marketing tactics used in advertisements

- Determine if the used marketing tactic in the advertisement is one of the following:
    - Brand partnership marketing
    - Multi-platform marketing
    - Influencer marketing
    - User generated content
    - Meme-based marketing
    - Product display and promotion
- Multiple tactics can be used in the advertisements. In that case, select all the tactics that are used in the advertisement.
- If the advertisement does not display any of these tactics, it must be coded as "other".

To use this codebook, a code sheet was developed in Microsoft Excel. For the marketing tactics, a drop-down menu was created for the notations. Since the advertisements can display several tactics, there are 3 columns for this code.

Step 3: Nutritional value of the product

- Determine whether the product shown In the advertisement/post is in the 'Schijf van Vijf' (Yes/No)
- If the product is not edible, or no product is shown, state N.A. (Non-Applicable)
- If the product cannot be found state "Not found"

Table 12 - Codebook Advertisements and Posts

Code	Notation	Elaboration
Characteristics		
Advertisement ID	(1.1, 1.2, … 8.15)	The ID is the number given to the analysed advertisement, to make sure the researcher knows which advertisement is mentioned. The ID's consist of two numbers, the first shows what brand it is from (1-8), the second shows the number of advertisements it is (1-15).
Advertisement link		It is important to provide the link, so that other coders or researcher can find the accounts.
Source	TikTok/Instagram/Meta Ad Library	
Number of likes on 06/10/2025	##	This is the number of likes the post has on the day that the dataset was created.
Number of comments on 06/10/2025	##	This is the number of comments the post has on the day that the dataset was created.
Number of shares on 06/10/2025	##	This is the number of shares the post has on the day that the dataset was created.
Date of posting	xx/xx/xxxx	This is the date on which the advertisement/post came online
Marketing strategy or tactic		
Marketing strategy or tactic	Brand partnership marketing; Multi-platform marketing; Influencer marketing; User generated content; Meme-based marketing; Product display and promotion; Other	
Nutritional value		
Nutritional value	Yes, No, N.A., Not found	It was stated if a product was part of the 'Schijf van Vijf', or not, or not found, of non-applicable. Some advertisements or posts show non-food products, or no products and other products were not found in the database.

Appendix C – Filled in Code Sheet

	A	B	C	D	E	F	G	H	I	J	K
1	Advertisements										
2	Advertisement ID	Link	Source	Number of	Number of con	Number of sha	Date of posting	Marketing strategy or tactic	Marketing strategy or tactic	Marketing strategy or tactic	Schijf van Vijf
3	1.1	https://www.ins	Instagram	4.537	165	2.180	02-10-2025	Product display and promotion	Meme-based marketing		No
4	1.2	https://www.ins	Instagram	2.393	35	1.255	30-09-2025	Product display and promotion	Meme-based marketing		N.A.
5	1.3	https://www.ins	Instagram	474	11	70	23-09-2025	Product display and promotion	Meme-based marketing		No
6	1.4	https://www.ins	Instagram	4.476	16	636	18-09-2025	Product display and promotion	Meme-based marketing	Storytelling marketing	No
7	1.5	https://www.ins	Instagram	4.788	73	793	16-09-2025	Meme-based marketing			N.A.
8	1.6	https://www.tik	TikTok	7.264	71	302	02-10-2025	Product display and promotion	Meme-based marketing		No
9	1.7	https://www.tik	TikTok	328	21	35	30-09-2025	Product display and promotion	Meme-based marketing		No
10	1.8	https://www.tik	TikTok	184	9	3	26-09-2025	Product display and promotion	Meme-based marketing		No
11	1.9	https://www.tik	TikTok	13.700	144	2020	25-09-2025	Product display and promotion	Meme-based marketing		No
12	1.10	https://www.tik	TikTok	115	6	2	22-09-2025	Other			N.A.
13	1.11	https://www.fa	Meta Ad Library				01-10-2025	Product display and promotion			No
14	1.12	https://www.fa	Meta Ad Library				30-09-2025	Product display and promotion			No
15	1.13	https://www.fa	Meta Ad Library				30-09-2025	Other			N.A.
16	1.14	https://www.fa	Meta Ad Library				30-09-2025	Product display and promotion			No
17	1.15	https://www.fa	Meta Ad Library				30-09-2025	Product display and promotion			No
18	2.1	https://www.ins	Instagram	31	2	3	30-09-2025	Product display and promotion			Yes
19	2.2	https://www.ins	Instagram	69	2	5	30-09-2025	Meme-based marketing	Product display and promotion		No
20	2.3	https://www.ins	Instagram	1.105	63	39	29-09-2025	Brand partnership marketing	Multi-platform marketing	Storytelling marketing	N.A.
21	2.4	https://www.ins	Instagram	97	11	36	25-09-2025	Brand partnership marketing	Multi-platform marketing	Storytelling marketing	N.A.
22	2.5	https://www.ins	Instagram	63	2	4	24-09-2025	Product display and promotion			Yes
23	2.6	https://www.tik	TikTok	178	10	10	30-09-2025	Product display and promotion			Yes
24	2.7	https://www.tik	TikTok	1.826	48	57	29-09-2025	Brand partnership marketing	Storytelling marketing	Multi-platform marketing	N.A.
25	2.8	https://www.tik	TikTok	53	4	27	25-09-2025	Brand partnership marketing	Storytelling marketing	Multi-platform marketing	N.A.
26	2.9	https://www.tik	TikTok	44	12	15	23-09-2025	Brand partnership marketing			N.A.
27	2.10	https://www.tik	TikTok	159	3	13	16-09-2025	Product display and promotion	Storytelling marketing		No
28	2.11	https://www.fa	Meta Ad Library				03-10-2025	Brand partnership marketing			N.A.
29	2.12	https://www.fa	Meta Ad Library				03-10-2025	Brand partnership marketing			N.A.
30	2.13	https://www.fa	Meta Ad Library				02-10-2025	Product display and promotion	Storytelling marketing		No
31	2.14	https://www.fa	Meta Ad Library				02-10-2025	Product display and promotion			No
32	2.15	https://www.fa	Meta Ad Library				02-10-2025	Product display and promotion			No
33	3.1	https://www.ins	Instagram	421	17	9	18-09-2025	Brand partnership marketing			N.A.
34	3.2	https://www.ins	Instagram	357	4	20	18-09-2025	Product display and promotion			No
35	3.3	https://www.ins	Instagram	359	17	49	09-09-2025	Product display and promotion	Storytelling marketing		No
36	3.4	https://www.ins	Instagram	958	13	93	04-09-2025	Influencer marketing	User-generated content	Product display and promotion	No
37	3.5	https://www.ins	Instagram	2.023	71	872	04-09-2025	Product display and promotion			N.A.
38	3.6	https://www.tik	TikTok	104	9	2	20-12-2024	Product display and promotion	Storytelling marketing		No
39	3.7	https://www.tik	TikTok	170	7	4	02-10-2024	Product display and promotion	Meme-based marketing		No
40	3.8	https://www.tik	TikTok	107	2	4	27-09-2024	Meme-based marketing			No
41	3.9	https://www.tik	TikTok	316	8	107	12-09-2024	Product display and promotion			N.A.
42	3.10	https://www.tik	TikTok	2.096	71	1286	04-09-2024	Product display and promotion	Meme-based marketing		No
43	3.11	x									
44	3.12	x									
45	3.13	x									
46	3.14	x									
47	3.15	x									
48	4.1	https://www.ins	Instagram	19	0	0	04-10-2025	Product display and promotion			No
49	4.2	https://www.ins	Instagram	78	6	1	01-10-2025	Product display and promotion	Meme-based marketing		No
50	4.3	https://www.ins	Instagram	27	1	0	29-09-2025	Product display and promotion	Storytelling marketing		No
51	4.4	https://www.ins	Instagram	20	0	3	26-09-2025	Product display and promotion	Storytelling marketing		No
52	4.5	https://www.ins	Instagram	25	6	1	24-09-2025	Multi-platform marketing	Other		N.A.
53	4.6	https://www.tik	TikTok	72	1	2	02-10-2025	Product display and promotion			No
54	4.7	https://www.tik	TikTok	70	2	1	01-10-2025	Product display and promotion	Storytelling marketing		No
55	4.8	https://www.tik	TikTok	48	1	0	29-09-2025	Product display and promotion			No
56	4.9	https://www.tik	TikTok	59	3	2	26-09-2025	Product display and promotion			No
57	4.10	https://www.tik	TikTok	41	0	0	25-09-2025	Multi-platform marketing	Other		N.A.
58	4.11	x									
59	4.12	x									
60	4.13	x									
61	4.14	x									
62	4.15	x									

Figure 5 - Screenshot of the filled in Code Sheet

Appendix D – Intercoder Reliability

Double coding was done on a portion of the data, the first 15 data-items were double-coded by a second researcher. First, a new Excel sheet was crated with the needed drop-down menus and the information about the different types of marketing strategies and tactics were shared.

Intercoder reliability was measured by comparing the data sheets and calculating a percentage per code. Then a percentual agreement was calculated. This manner is used often and is a flexible and simple way to calculate intercoder reliability. It is somewhat liberal but gives a good impression of the overall similarities between the coders.

Link
The links were copied from the original Excel sheet and worked properly, displaying the same post/advertisement as was saved in the dataset. Intercoder reliability is therefore 15/15 * 100 = 100%.

Source
The sources were coded the same as the initial coding. The intercoder reliability is therefore 15/15 * 100 = 100%.

Number of likes
The number of likes were the same in both sheets. They were only applicable to the first ten sources, so intercoder reliability is 10/10*100 = 100%.

Number of comments
The number of comments were the same in both sheets. They were only applicable to the first ten sources, so intercoder reliability is 10/10*100 = 100%.

Number of shares
The number of shares were the same in both sheets. They were only applicable to the first ten sources, so intercoder reliability is 10/10*100 = 100%.

Date of posting
The dates of posting were the same in both sheets, so intercoder reliability is 15/15*100 = 100%.

Marketing strategy/tactic
For all advertisements/posts it was possible to fill in a maximum of three marketing tactics or strategies. The first coder filled in 29 tactics and strategies, so almost two different techniques per post/advertisement. The second coder filled in 34 techniques. Of these codes, 21 were coded the same. The intercoder reliability therefore is 21/29 * 100 = 72.4%.

The biggest difference was that the second coder used the ‘user-generated’-code 8 times, where the first coder did not use this code at all.

Schijf van vijf
Only one code was coded differently. This means that the intercoder reliability is 14/15*100 = 93.3%.

The total average percentual agreement is:
100 + 100 + 100 + 100 + 100 + 100 + 72.4 + 93.3 / 8 = 95.7%

To create a clearer overview for the only variables that were subjective, *marketing strategy/tactic* and *schijf van vijf* were used in an analysis. The total average percentual agreement for the report is therefore:
72.4 + 93.3 / 2 = 82.9%

Appendix E – Recruitment Message Study 2

Hii, voor mijn afstudeeronderzoek doe ik onderzoek naar de invloed van social media marketing op de merk attitude en loyaliteit van jongvolwassenen (16 tot en met 25-jarigen). Zou je voor mij een vragenlijst willen invullen? Het duurt ongeveer 8 minuten en zou mij heel erg helpen. Ik ben namelijk erg benieuwd wat jij vindt van de social media posts van McDonalds, Domino's, Upfront en Red Bull!!

Alvast heel erg bedankt voor het mee doen!
Groetjes Julie

https://wur.az1.qualtrics.com/jfe/form/SV_3WNJal3f9cMh7YG

For Instagram:

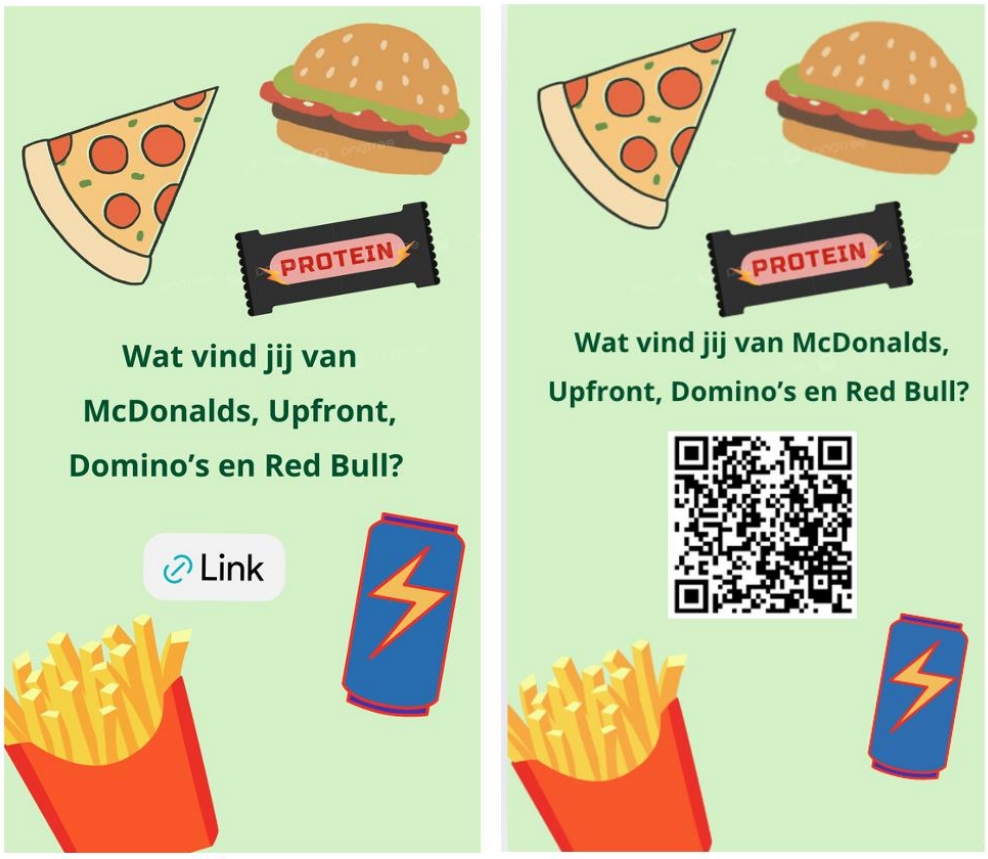

Figure 6 - Recruitment Pictures for Instagram Stories

Appendix F – Questionnaire

Beste participant,
Welkom bij dit onderzoek naar sociale media gebruik. Voor het afronden van mijn master Consumenten Wetenschappen doe ik onderzoek naar de invloed van sociale media marketing op merk perceptie, doormiddel van het meten van loyaliteit en waardering. De vragenlijst kost ongeveer 8 minuten.

Alvast ontzettend veel dank voor het mee doen!
Groeten,
Julie van Berckel
Julie.vanberckel@wur.nl

Informed consent

Toestemmingsformulier deelname onderzoek
Dit onderzoek wordt uitgevoerd door een master-studente van Wageningen University & Research. Het doel is te onderzoeken wat het effect van social media marketing is op de merkperceptie van Nederlandse jongvolwassenen. Het onderzoek duurt ongeveer 8 minuten. Deelname is volledig vrijwillig. Je kunt op elk moment stoppen zonder aan te geven waarom.

Doordat je meedoet krijg ik veel verschillende inzichten in de meningen van jongvolwassenen over reclames op social media. Hoewel de reclames misschien een vorm van emotie op kunnen wekken is deelname aan dit onderzoek niet gevaarlijk.

De gegevens die we verzamelen gaan alleen om jouw antwoorden op de vragenlijst en de gevraagde algemene achtergrondinformatie (zoals leeftijd en geslacht). Er worden geen namen of contactgegevens gevraagd. De gegevens worden anoniem verwerkt en alleen gebruikt voor het onderzoek. Ze worden maximaal één jaar bewaard en daarna verwijderd. Resultaten worden uitsluitend in geaggregeerde vorm gepresenteerd, zodat jij niet herkenbaar bent.

Bij vragen kun je contact opnemen via het volgende emailadres.

Julie van Berckel
Wageningen University & Research
julie.vanberckel@wur.nl

Meer informatie over je rechten met betrekking tot persoonsgegevens vind je bij Privacy - WUR. Bij klachten kun je contact opnemen met privacy@wur.nl of de Autoriteit Persoonsgegevens (www.autoriteitpersoonsgegevens.nl).

- Hiermee bevestig ik mijn toestemming om deel te nemen aan het onderzoek en dat mijn gegevens gebruikt mogen worden zoals hierboven beschreven.

- Antwoord opties: Ja, ik geef toestemming; Nee, ik geef geen toestemming[4]

Screening en demografische vragen

- Hoe identificeer jij jezelf?
  - Antwoord opties: man/vrouw/non-binair/wil ik liever niet zeggen/anders
- Vraag: Wat is jouw hoogst behaalde of gevolgde opleiding?
  - Antwoord opties: Geen of basisonderwijs; VMBO; MBO-niveau 1 of 2; MBO-niveau 3 of 4; HAVO/VWO; HBO-bachelor of Universitaire bachelor; HBO-Master, Universitaire master of hoger
- Vraag: Hoe oud ben je?
  - Antwoord: *zelf invullen*[5]
- Vraag: Heb je een social media-account?
  - Antwoord opties: Ja; Nee[6]
- Vraag: Gebruik je social media (denk hierbij aan zelf posten, en posts van anderen volgen, liken, reageren, kijken)?
  - Antwoord opties: Ja; Nee[7]

Schermtijd vragen

Hierna volgen drie vragen over schermtijd. Schermtijd is de tijd die je besteedt op je telefoon. Bijna alle telefoons houden dit bij in de instellingen. Het is voor de volgende vragen belangrijk dat je je schermtijd op zoekt en niet gokt. Op het volgende scherm wordt uitgelegd hoe je bij de ***gemiddelde schermtijd van vorige week*** *terecht komt.*

- Welke telefoon heb je?
  - Antwoord opties: IOS (Iphone)/Android (Dit bepaalt naar welk uitleg scherm de participant wordt doorgestuurd)

(Per vraag komt een uitleg scherm over waar je de benodigde schermtijd kunt vinden)

Figure 7 - General screentime IOS

[4] Nee, ik geef geen toestemming = excluded from the study and guided out of the questionnaire.
[5] Younger than 16 and older than 25 = excluded from the study and guided out of the questionnaire.
[6] Nee = excluded from the study and guided out of the questionnaire.
[7] Nee = excluded from the study and guided out of the questionnaire.

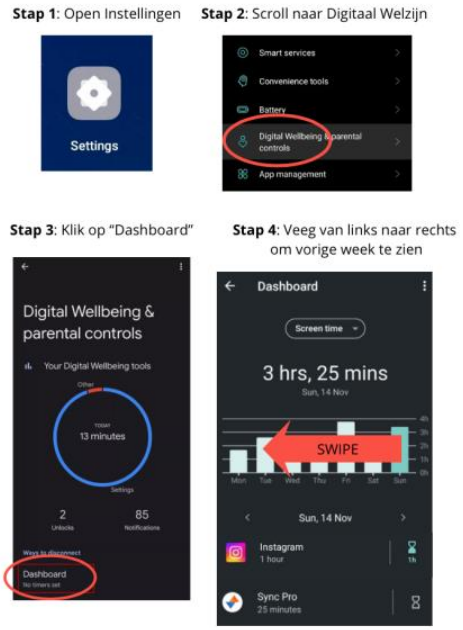

Figure 8 - General screentime Android

- Wat is de gemiddelde schermtijd van vorige week voor een dag?
    - Antwoord opties: minder dan 2 uur per dag, 2-3 uur per dag, 3-4 uur per dag, 4-5 uur per dag, 5-6 uur per dag, 6-7 uur per dag, meer dan 7 uur per dag.

Figure 9 - Instagram screentime IOS

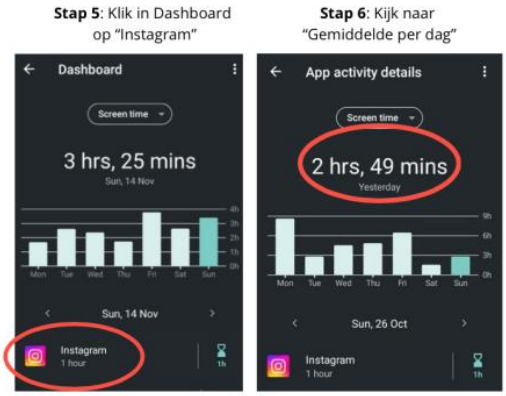

Figure 10 - Instagram screentime Android

Wat is de gemiddelde schermtijd voor Instagram per dag van vorige week?

- Antwoord opties: 0-1 uur per dag, 1-2 uur per dag, 2-3 uur per dag, 3-4 uur per dag, meer dan 4 uur op een dag

Figure 11 - TikTok screentime IOS

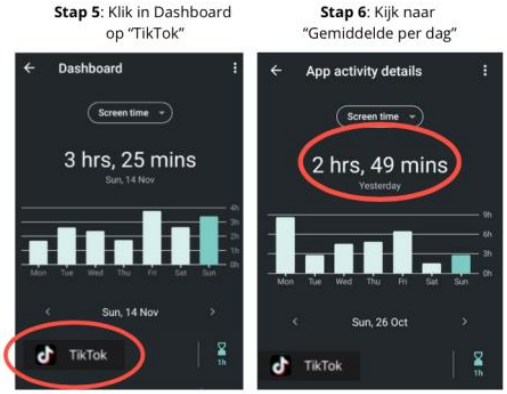

Figure 12 - TikTok screentime Android

- Wat is de gemiddelde schermtijd voor TikTok per dag van vorige week?
    - Antwoord opties: 0-1 uur per dag, 1-2 uur per dag, 2-3 uur per dag, 3-4 uur per dag, meer dan 4 uur op een dag

Merk perceptie vragen

Hierna volgen enkele stellingen over vier merken die je op sociale media eventueel voorbij ziet komen. Geef voor elk merk aan hoe erg je het eens bent met de stellingen. Dit gaat van zeer oneens tot zeer mee eens. Per merk krijg je ook een aantal social media posts te zien. Geef hiervoor ook aan of je het eens of oneens bent met de stelling. Geef altijd je echte mening, er zijn geen goede en foute antwoorden.

Figure 13 - Brand names, Logo's and Examples of Products

(Alle merken worden getoond met een plaatje van hun logo en een paar voorbeelden van producten worden benoemd. De volgende stellingen worden voor ieder merk gesteld:)

- **Merkwaardering:** Ik vind dit merk leuk.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens
- **Merkwaardering:** Dit merk sluit goed aan bij wat ik wil.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens
- **Merkloyaliteit:** Ik koop regelmatig producten van dit merk.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens
- **Merkloyaliteit:** Ik zou eerder eenzelfde soort product kopen bij een andere aanbieder.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens

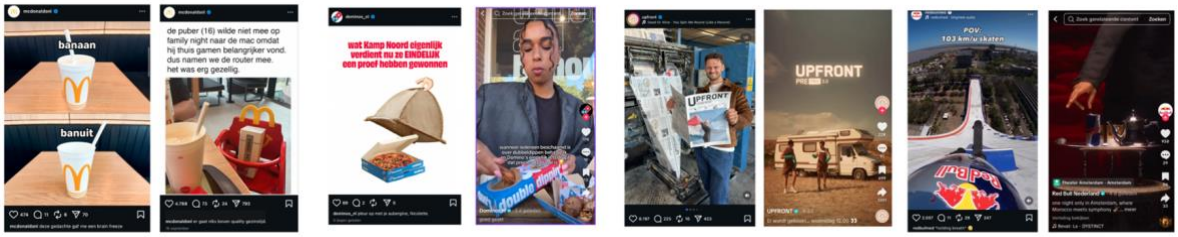

Figure 14 - Post examples

Interactie met social media posts
(Voor ieder merk worden er twee posts laten zien)

- Het volgen van dit merk op social media (Instagram en/of TikTok) is een goed idee.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens
- Dit type posts zou ik liken.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens
- Dit type posts zou ik doorsturen.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens
- Ik zou op dit type posts reageren.
    - Zeer mee oneens –mee oneens – enigszins mee oneens – neutraal/geen mening – enigszins mee eens – mee eens – zeer mee eens

Dit is het einde van de vragenlijst. Dank voor het meedoen aan mijn onderzoek. Mocht je nog vragen hebben, kunt u ze hier invullen of kun je mij een mail sturen op julie.vanberckel@wur.nl

Appendix G – Regression Analyses with three Screentime Groups

Table 13 - Model Summary Regression (3 Groups Screentime)

	R	R^2	Adjusted R^2	F	Sig. (F)
Model 1 - Brand Attitude	.522	.272	.222	5.367	<.001
Model 2 - Brand Loyalty	.456	.208	.153	3.760	.002