Identifying and categorizing influencers on Instagram with eye tracker

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Abstract

Purpose – This paper aims to explore the recognition and success of different ways of branding native advertising in influencer marketing.

Design/methodology/approach – The data are evaluated using statistical tests, correlation and cluster analysis.

Findings – It was found that the higher the recognition rate of a post tagged in a particular way, the better the tagging method for influencer marketing on Instagram. Based on the findings of this study, word tag is recommended first because it is flexible and has one of the highest recognition rates.

Research limitations/implications – The generalizability of the results across different regional settings requires further investigation.

Practical implications – Good labeling of native advertising leads to greater success.

Originality/value – This study can be used by marketing managers, advertisers and influencers to gain insight into the issue, as well as to better select the appropriate labeling method for their advertising content.

Keywords Online marketing, Eye-tracking, Influencer marketing, Advertising recognition, Influencer collaboration, Paid partnership

Paper type Research paper

Identificando y categorizando influencers en instagram con eye tracker

Resumen

Objetivo – Este trabajo tiene como objetivo explorar el reconocimiento y el éxito de diferentes formas de branding de publicidad nativa en el marketing de influencers.

Diseño/metodología/enfoque – Los datos se evalúan mediante pruebas estadísticas, correlación y análisis de conglomerados.

Resultados – Se encontró que cuanto mayor es la tasa de reconocimiento de un post etiquetado de una manera particular, mejor es el método de etiquetado para el marketing de influencers en Instagram. Basándose en los resultados de este estudio, se recomienda en primer lugar el etiquetado por palabras porque es flexible y tiene una de las tasas de reconocimiento más altas.

Implicaciones prácticas – Un buen etiquetado de la publicidad nativa conduce a un mayor éxito.

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Originalidad – Este estudio puede ser utilizado por directores de marketing, anunciantes e influencers para obtener información sobre el tema, así como para seleccionar mejor el método de etiquetado adecuado para su contenido publicitario.

Limitaciones/Implicaciones de la investigación – La generalizabilidad de los resultados en diferentes entornos regionales requiere más investigación.

Palabras clave Marketing de influencers, Colaboración remunerada, Colaboración de influencers, Marketing online, Reconocimiento publicitario, Eye-tracking

Tipo de artículo Trabajo de investigación

用眼球追踪器识别和分类instagram上的影响者

摘要

目的 – 本文旨在探讨影响者营销中不同方式的品牌原生广告的识别和成功。

方法 – 使用统计测试、相关性和聚类分析对数据进行评估。

研究结果 – 研究发现, 以特定方式标记的帖子的识别率越高, Instagram上影响者营销的标记方式就越好。基于这项研究的结果, 首先推荐单词标签, 因为它很灵活, 而且有最高的识别率之一。

实际意义 – 对原生广告进行良好的标注会带来更大的成功。

原创性 – 本研究可供营销经理、广告商和影响者使用, 以深入了解这一问题, 并更好地为其广告内容选择合适的标签方法。

研究局限性 – 研究结果在不同地区环境中的普适性需要进一步调查。

关键词 ： 影响者营销, 付费合作, 影响者合作, 网络营销, 广告识别, 眼球追踪

文章类型 研究型论文

1. Introduction

Influencer marketing is becoming an essential component of the marketing mix for businesses of all sizes and industries, and overall spending on influencer marketing in businesses is increasing (De Veirman *et al.*, 2017; Uzunoglu and Misci Kip, 2014). The popularity of "social media channels" over the past decade has resulted in a growing recognition of influencer marketing (Xie and Feng, 2022; Estay, 2020; Xu and Pratt, 2018). Instagram is the most popular social network for influencer marketing (Loude, 2017). Influencers are primarily used by marketers to reach Generation Z. People born between 1997 and 2012 are considered Generation Z, and they range in age from 10 to 25. This generation is distinguished by the fact that they prefer mobile phones to computers and place a premium on sustainability and entertainment. Generation Z, more than any other generation, closely monitors and trusts influencers (Hudders et *al.*, 2021). Influencer recommendations influence Generation Z purchasing behavior, and more than half will follow influencer advice because they perceive it to be authentic and honest advice from field experts (Geyser, 2022; Advertising Standards Authority, 2020; De Veirman and Hudders, 2019).

Previously, influencer companies used marketing to develop brands rather than performance campaigns, but now companies focus on using influencers for sale (Kim and Kim, 2021; Lou *et al.*, 2019). Companies change brand associations and brand image in the target group by creating content in collaboration with influencers, while also organically creating word of mouth (De Veirman *et al.*, 2017; Scott, 2015).

Celebrity endorsement of products and services influences the outcomes of brand marketing communication. It has an impact on things like credibility, brand access and purchasing intent (WARC, 2021; Jin *et al.*, 2019). According to Stubb *et al.* (2019), influencers are social network users who are active in a specific field and have gained credibility through social network publications, as well as having a large audience that watches the content they publish on their profiles. Influencers are appealing to businesses because they

can reach tens of thousands to hundreds of thousands of people who regularly watch the content that influencers create, such as on Instagram or YouTube (Hwang and Zhang, 2018). Influencers are more effective than celebrities for social media marketing because they have a close relationship with their audience, making their audience more accessible and credible than celebrities (Blight, 2022; Tafesse and Wood, 2021; Schouten *et al.*, 2020; Ruiz-Gomez, 2019). If screen viewers discover an influencer who reflects their own values, personality or image, and that influencer promotes a product that appears consistent with their usual style, these viewers are more likely to align their perceptions of the product with implicit perceptions of the influencer (Belanche *et al.*, 2021; Kim and Kim, 2021; Casaló *et al.*, 2020; Xu and Pratt, 2018). A study conducted by Casaló *et al.* (2021) confirmed the direct impact that followers' perceptions of the creativity of brands' Instagram posts have on the creation of positive emotions. Instagram communication is based on visual communication (Jung *et al.*, 2018; Casaló *et al.*, 2017) to strengthen followers' effective attachment to the product brand (Zhu and Chen, 2015). Marketing influencers' success can be explained by their hidden nature, as influencers frequently combine noncommercial and commercial posts, making it difficult for followers to differentiate between personal and sponsored posts. In practice, this raises the question of whether influencers' persuasive intent is obvious to the audience (Boerman and Müller, 2022; Hudders *et al.*, 2021).

Various European Union countries also rely on self-regulation of influencer marketing, which is controlled by sponsors and influencers. Sponsored news is a type of native advertising that offers a lot of hope as a solution to digital publishing revenue issues, but it also raises a lot of questions about whether the average consumer will be able to recognize its advertising nature.

This study responds to the current situation and seeks to define the most appropriate ways to label influencer marketing on Instagram based on the data obtained. The study's goal is to compare the degree of recognition of various methods of labeling influencer marketing on Instagram.

To answer the aim, we set two research questions:

RQ1. Which method of advertising in the paper has the highest recognition?

In response to *RQ1*, four working hypotheses were developed.

The second research question was developed to determine whether the tagging method and other factors (e.g. influencer size and product category) affect ad recognition:

RQ2. Are there differences or similarities between posts with different ad placements due to ad recognition?

Section 2 of this study presents the relevant literature review and secondary data analysis (previous research). Section 3 explains the proposed research methodology. The Section 4 is devoted to the primary research and its selected results focusing on the effect of different ad labeling methods on the selected social network. Sections 5 and 6 summarizes the most important findings and recommendations for future research.

The study emphasizes that the advertiser needs the ad to be successful, i.e. to get as many people as possible to respond to it, but on the other hand, the advertiser needs to be careful that it is not hidden advertising, which is against the law in most countries. With the exception of the work of Jin *et al.* (2019) and Martínez-López *et al.* (2020), there is a dearth of studies that examine the effect of sponsorship disclosure on trustworthiness towards influencers in the context of visual-based social media platforms. Most studies primarily focus on the characteristics of influencers on social media (Martínez-López *et al.*, 2020; Lou and Yuan, 2019; De Veirman *et al.*, 2017).

2. Literature review and hypotheses building

2.1 Advertisement recognition

Advertising recognition is based on the persuasion knowledge (PK) model, which states that there are two ways to perceive advertising content: with active PK and with inactive PK. If the PK is activated while watching the advertisement, the person is aware that he is being influenced by the advertising message and, as a result, responds to the message. On this basis, for example, a negative attitude toward the advertiser, a brand or the advertising message may emerge (Pasandaran and Mutmainnah, 2020).

PK is confident in the interpretation of advertising and the advertising tactics that will persuade the recipient of the advertising message. The more a person is exposed to advertisements, the higher his or her PK (Jung and Heo, 2018). According to De Veirman and Hudders (2019), this phenomenon also occurs in response to influencer marketing. Ad recognition, according to the PK model, expresses a person's ability to understand what the advertiser's intentions are, what motivates them and what tactics they use to disseminate the advertisement. This model is used in many studies on ad recognition (De Veirman and Hudders, 2019; Jung and Heo, 2018; Loude, 2017; van Reijmersdal *et al.*, 2016).

The overall knowledge of advertising practices in the industry, in this case on social networks, can also influence advertising recognition. On this basis, advertising recognition occurs more frequently in people who have more experience with the given format of native ads. This is supported by the findings of Evans *et al.* (2018) and Tutaj and van Reijmersdal (2012), who found that when people see advertising in a format they recognize, they have a negative attitude toward it while also remembering it more.

Sponsored content, according to some studies, generally worsens both brand and influencer perception (van Reijmersdal *et al.*, 2020). If an influencer posts nonsponsored reviews and mentions that the review is genuine and that the post is not part of a collaboration, the post may receive more positive reactions and receive less ad recognition (De Veirman and Hudders, 2019).

However, according to Pasandaran and Mutmainnah (2020), Müller (2019) and De Veirman and Hudders (2019), proper labeling of sponsored contributions improves public perception of the influencer and the brand. Information such as #paidad, #sponsored and the label "paid partnership" can increase the recognition of advertising in the context of influencer marketing (Boerman, 2020; Lou *et al.*, 2021; Kim and Kim, 2021; De Veirman and Hudders, 2019; De Jans *et al.*, 2018).

If the content (e.g. a blog article or video) provides a detailed description of the partnership as well as an explanation of why the partnership was formed, the labeling of the advertisement may not have a negative impact on consumer opinion (Stubb *et al.*, 2019; Lu *et al.*, 2014). According to the findings of a study (Rahman *et al.*, 2022), the creative, contextual and content elements of major brands' social media marketing influence customer engagement.

Globally, the International Chamber of Commerce deals with the issue of advertising labels, and its system serves as the basis for most self-regulatory systems. In countries such as Germany, France, The Netherlands and the UK, advertising must be instantly recognizable (Advertising Standards Authority, 2020). In the USA, the Federal Trade Commission is responsible for the marking of advertising (FTC, 2019).

2.2 Hypotheses building

The tag for advertising should not be tagged among links or hashtags. This also refers to the tag in Instagram Stories, which must be prominent and large enough for followers to read (FTC, 2019). The size, shape and position of the ad label within the content also have an

impact; for example, the larger and more prominent the label, the higher the ad recognition rate (Amazeen and Muddiman, 2017; Iversen and Knudsen, 2017; Kim and Hancock, 2016; Wojdynski and Evans, 2016). The Instagram tag appears before the content and includes the phrase "paid partnership with," the post should receive the highest level of ad recognition (Stubb *et al.*, 2019; Boerman *et al.*, 2014). Increased ad recognition occurs when an ad is marked at the start of a post, such as at the start of a caption beneath a photo (Sah *et al.*, 2018). The first hypothesis was established as a result of this:

H1. A post that has been marked with a platform tool has a higher ad recognition rate than a post that has not been marked.

Tagging the ad and referring to the brand in the text increases the recognition of the ad (Evans and Sun, 2021). The recognition rate of a native ad varies with the timing of the tag; that is, the closer the tag is to the beginning of the content, the higher the ad recognition rate (Stubb *et al.*, 2019; Boerman *et al.*, 2015). The majority of the recommendations (Boerman and Müller, 2022; FTC, 2019; Wojdynski and Evans, 2016) emphasize the placement of the advertisement at the beginning of the text.

The following hypothesis will be used to distinguish a text tag from a hashtag at the beginning of a post:

H2. A post with text at the beginning of the post receives more ad recognition than a post with a hashtag at the beginning of the post.

A large number of hashtags and tagged posts are also advantageous because they help to promote the brand in the eyes of others and are frequently linked to purchasing behavior (Erz *et al.*, 2018; Dolan *et al.*, 2016; Malthouse *et al.*, 2016). Different labeling methods, such as hashtag, Instagram tool or word description, can influence Instagram ad recognition in various ways (Lou *et al.*, 2021; Boerman, 2020; Giannoulakis and Tsapatsoulis, 2019; De Jans *et al.*, 2018; Evans *et al.*, 2017).

For specific hashtags, the recognition rate of the most commonly used hashtag #cooperation will be compared with the hashtag, #paid partnerships, using hypothesis:

H3. Posts marked with the hashtag #paid partnerships have a higher ad recognition rate than posts marked with the hashtag #cooperation.

In influencer marketing, the marketing research method of eye tracking is used for imaginative use of advertising (Boerman and Müller, 2022; Zhou and Xue, 2021; Maslowska *et al.*, 2020). This method is used to study customer behavior, including on social media, in the perception of static and dynamic graphic advertising materials. The eye tracking method has also been used because people are unable to accurately report the focus of their visual attention when they see advertisements on social media (Hutton, 2019; Vraga *et al.*, 2020; Jovanovic and Ratkovic, 2021; Roemer, 2022). One of the main aims of eye-tracking research is to gain insight into the congruent visual process (Šola *et al.*, 2021; Carter and Luke, 2020). Subconscious responses as observed through eye-tracking lead to consumer decision-making and consequently to the expression of consumer preferences and motivations (Białowąs and Szyszka, 2019). Another advantage of this method is that eye movements are reflexive in nature and are mostly beyond the control of human consciousness (Vraga *et al.*, 2016). The eye-tracking method allows you to track the respondent's eye movements and determine which part of the image catches their attention. Subconscious reactions, as detected by eye-tracking, lead to consumer decision-making and, as a result, manifestations of their preferences and motivations (Klaib *et al.*, 2021;

Białowąs and Szyszka, 2019). Boerman and Müller (2022), Boerman (2020), Iacobucci and De Cicco (2020), Müller (2019) and King *et al.* (2019) claim that eye-tracking will determine the so-called points of interest (individual methods of marking – hashtags, text expressing marking, marking using the Instagram tool) on which the respondent should fixate.

The total duration of a person's fixations on an area of interest (AOI) in our research will serve as the visual measurement metric, taking into consideration visits and revisits to the AOI (Bigne *et al.*, 2021; Bera *et al.*, 2019; Xiao *et al.*, 2018; Gere *et al.*, 2017).

We will investigate whether the recognition of the advertisement influences attention to the method of advertising by testing hypothesis:

H4. The longer a post is fixed on a specific ad tag, the higher the ad recognition rate for that post.

3. Method

The study's goal is to compare the ad recognition of posts on Instagram that contain different ways of labeling of influencer marketing. The information was gathered in the Czech Republic. It can be demonstrated that information from a specific territory can also inspire other regions/countries (Boerman and Müller, 2022; Wojdynski and Evans, 2020).

To achieve the stated objective, two research questions and four hypotheses were identified (Figure 1).

Based on the literature (Pavlíčková, 2020) and our two RQs and working hypotheses, 74 respondents were selected.

The eye-tracking method was selected to meet the research objective. Eye-tracking is a method that helps researchers to understand visual attention (Kim and Kim, 2021; Schwebler *et al.*, 2020) by determining which point is seen, how long it is looked at and what path it takes (Bergstrom and Schall, 2014). Essentially, it is a method that can provide data on fixation position, duration and eye movement (Button, 2019).

It is possible to track respondents' attention to various ways of labeling influencer marketing on Instagram using eye-tracking. The experiment will use eye-tracking to determine whether respondents pay attention to the given methods of marking or which methods of marking they pay the most attention to.

Frequency analysis methods, probability confidence intervals, the nonparametric Mann–Whitney test for comparing two independent samples and hierarchical cluster analysis were used.

3.1 Metrics

Advertising recognition can be measured in two ways: on a Likert scale from 1 to 7 (Evans *et al.*, 2018; Boerman *et al.*, 2014) or using binary notation 1 (advertising) or 0 (not advertising) (van Reijmersdal *et al.*, 2020; Müller, 2019; Evans *et al.*, 2018). Because the experiment material included 24 items for the respondents to judge, a binary labeling method was chosen (respondents were only required to label posts that they thought contained advertising).

Müller (2019) uses a questionnaire survey to ascertain the level of recognition of advertising in individual contributions. A sponsored post achieves 100% recognizability when all respondents indicate that it contains advertising. The higher the ad recognition rate, the more respondents mark a post as an ad.

To determine the attention paid to the various ways of marking the advertisement, it was necessary to determine how much attention the respondents paid to the area where the

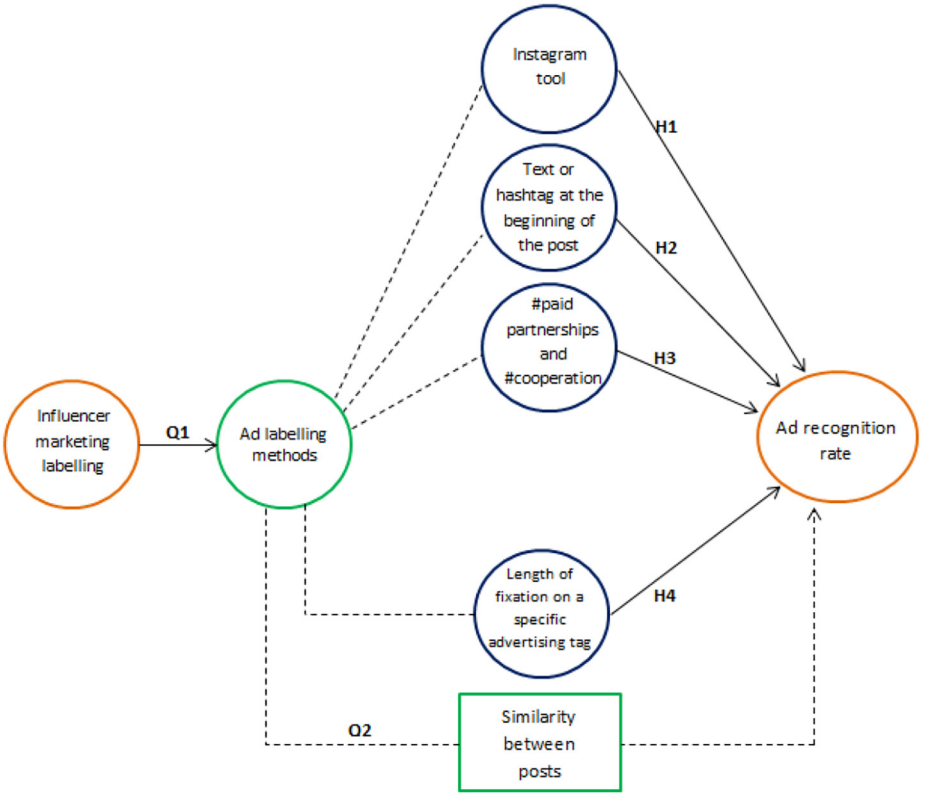

Figure 1.
Research questions and hypotheses

contributions were marked. The area where the sponsored contribution was marked was identified as a point of interest by the eye-tracking software (Marini *et al.*, 2022; Białowąs and Szyszka, 2021 Białowąs and Szyszka,2019; Wedel and Pieters, 2017).

The longer the respondent is fixated on the point of interest, the more attention he or she pays to the given point of interest (i.e. the more the respondent followed the hashtag or phrase with which the post was marked as an advertisement). The length of the fixation thus determines how long the respondent has focused on the area. The duration of fixation is measured in seconds (Holmqvist *et al.*, 2011).

3.2 Material

A total of 24 Instagram texts were chosen and edited before being inserted into the presentation that was shown to the respondents on the monitor during eye-tracking. Because one out of every three Instagram posts is an advertisement (Gesenhues, 2019), the post composition corresponded to this ratio, and the simulation contained eight posts with ads and 16 posts without ads. The contributions in form of posts were chosen with the Z generation's interests in mind.

The content consists of eight posts, each of which contains advertising and is labeled. Based on the results of the search (Boerman and Müller, 2022; Kostygina *et al.*, 2021; Celuch, 2021), the following methods of ad tagging were chosen: Instagram tagging, text

tagging at the start of the post, hashtag tagging #cooperation (at the start of the label and between hashtags), hashtag tagging #paid partnerships (at the start of the tag and between hashtags) and hashtag tagging #ad (at the beginning of the label and between hashtags).

Within each of the sponsored posts, an eye-tracking software point of interest was set in the area of advertisement marking (e.g. if the post contains the hashtag #cooperation, the hashtag itself and its immediate surroundings have been set as a point of interest). The length of fixation on points of interest, i.e. the contribution designation, was tracked. Because the eye-tracker is not always accurate in measuring, the area immediately surrounding the marking area was included (Białowąs and Szyszka, 2021; Białowąs and Szyszka, 2019).

4. Data analysis

4.1 Comparing contributions (posts) using ad recognition rate and fixation length

Table 1 shows that none of the posts studied had a 100% ad recognition rate. The ad recognition rates are lowest for contributions indicated with the hashtags #paid partnerships and #cooperations

In addition, Table 1 shows the average duration of fixation for each type of marking. The respondents gave the word marking the greatest attention out of all the kinds of marking (average length of fixation is 0.62 s). More than 70% of respondents classified a post in this manner as advertising. The #ad mark between hashtags shows the second longest average fixation length (the average fixation length per area of this mark is 0.49 s).

The most widely recognized post was first designated with #ad, yet it has the third shortest average fixation length (0.20 s). Only postings for which the advertisement was designated using a hashtag put among other hashtags, notably #paid partnerships (average length of fixation is 0.151 s) and #cooperation, had a shorter time of fixation (average length of fixation is 0.153 s).

The 95% confidence intervals for the likelihood were set to apply the results to the entire base set. All relevant ad-recognition rate values are represented by these intervals. Figure 2 visually depicts the resulting confidence intervals for the individual contributions.

The post tagged with #cooperation is the bottom limit for ad recognition. With 95% probability, we can say that a post tagged with #cooperation embedded between hashtags will be recognized by at least 16.1% of people, a post tagged with #ad may be recognized by 57.6%–80.2% of people (limit for the three posts with the highest ad recognition).

The word at the start of the post will be recognized by between 59.1% and 81.4% of respondents with the same probability. And the most identifiable post, i.e. the one that starts

Table 1.
Ad recognition rate and average fixation length on ad tags

The type of marking an advertisement in a post	Ad recognition rate in %	Average duration of fixation on the ad tag in seconds
#ad at the beginning	83.78	0.2014
Verbal marking at the beginning	70.27	0.6200
#ad mark between hashtags	68.92	0.4901
Instagram tool	59.46	0.4149
#paid partnerships at the beginning	55.41	0.2770
#cooperation at the beginning	45.95	0.2907
#paid partnerships between hashtags	36.49	0.1515
#cooperation between hashtags	27.03	0.1528

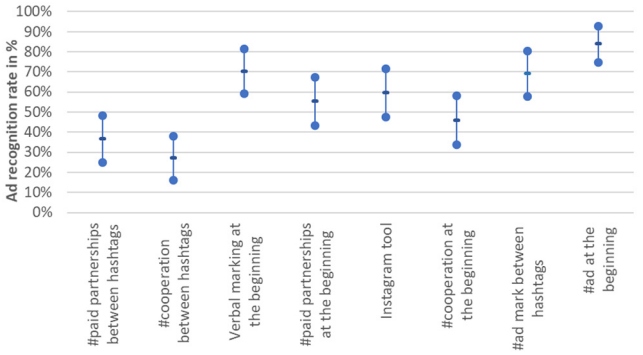

Figure 2.
Confidence intervals for ad recognition rate share ($\alpha = 0.05$)

with #ad, is recognized by between 74.6% and 92.9% of individuals. The post tagged with the platform tool had the fourth highest recognition rate. As a result, *H1* can be partially confirmed. The identification rate of the post tagged with the platform tool is higher than that of the four posts tagged otherwise.

Because the word-marked post has a greater recognition rate than two of the three hashtag-marked posts at the start of the post, *H2* can also be partially supported.

Because a post marked with #paid partnerships at the start has a higher recognition rate than a post marked with #cooperation at the start, and a post marked with #paid partnerships between hashtags has a higher recognition rate than a post marked with #cooperation between hashtags, *H3* can be partially confirmed.

4.2 Dependence of ad recognition on the length of fixation

A nonparametric Mann–Whitney test was performed to evaluate two independent selections to see if ad recognition is affected by fixation length. Respondents were always split into two groups: those who properly identified the post as an advertisement, and those who incorrectly identified the post as an advertisement. After that, the length of fixation in these two groups was investigated. It was assumed that a longer fixation time would result in a more accurate determination of the advertisement.

Table 2 illustrates the resulting p-values of the tests. All p-values are higher than the significance level, as can be observed (both 5% and 10%). This suggests that there were no variations in the length of fixation between the groups that recognized the contributions and the groups that did not identify the contributions. The length of the fixation has not been demonstrated to alter the advertisement's success determination.

The Mann–Whitney test found no evidence of ad recognition being dependent on fixation length. *H4* cannot be validated based on this test.

Correlation analysis was used to evaluate the relationship between the amount of advertisement recognition and the average length of fixation. Although the correlation coefficient is 0.54, the resulting p-value is 0.167, which is greater than the maximum permissible level of significance of 0.1. This indicates that the correlation coefficient is not significant, implying that there is no link between the two numbers.

H4 could not be confirmed even by correlation analysis. The resulting correlation coefficient and p-value suggest that, theoretically, it might be possible to confirm a positive link if more papers involving different labeling techniques were examined.

The second research question was assessed using cluster analysis. The papers were segmented on the basis of similarity using cluster analysis, specifically using a hierarchical strategy.

The dendrogram shown in Figure 3 depicts the clustering of items based on imaginary cross-section analysis (marked in red). Individual respondents' recognition of the advertising was used to aggregate the posts in this example.

The output of cluster analysis, as shown in Figure 3, is three distinct groups of contributions, each with identical contributions. The contributions in Figure 3 are grouped in the same way as they are in Table 1, where they are compared based on the degree of ad recognition.

Group 1 includes posts 3, 7 and 8, which had the highest ad awareness. The first group is described in the following paragraphs. Post 3 was indicated verbally at the start of the post, post 7 was marked with the hashtag #ad in the middle of the post, and post 8 was marked with the hashtag #ad at the start of the post. These contributions are similar in that they involve a cooperation between an influencer and a well-known brand.

Table 2.
Influence of fixation length on ad recognition

Mann–Whitney test – total fixation duration	
Contribution (post)	*p*-value
@1 #paid partnerships between hashtags	0.673
@2 #cooperation between hashtags	0.529
@3 verbal at the beginning	0.794
@4 #paid partnerships at the beginning	0.175
@5 IG tool	0.889
@6 #cooperation at the beginning	0.973
@7 #ad between hashtags	0.667
@8 #ad at the beginning	0.188

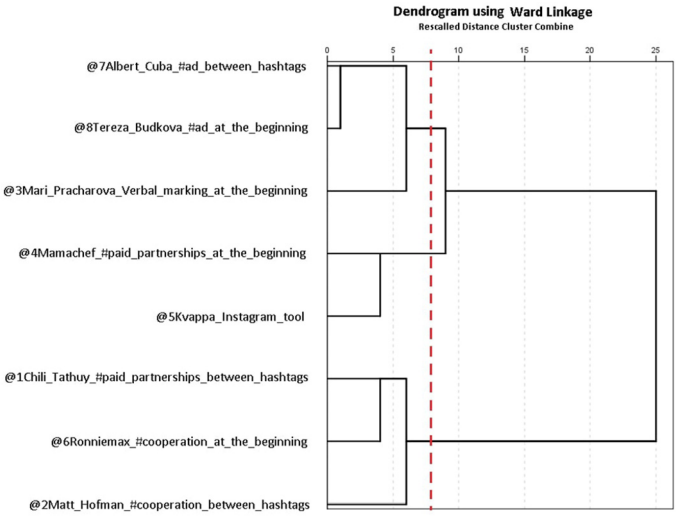

Figure 3.
Dendrogram

The influencer's posts, as well as their face, can be seen in all of them. The influencer of post 3 has 161,000 followers, the influencer of post 7 has 60,300 followers, and influencer of the post 8 has 116,000 followers, according to the number of influencers who added these posts. All of these influencers fall within the macro-influencer category (over 50,000 followers).

Group 2 – Posts 4 and 5 make up the second series of posts. Post 4 is labeled with the hashtag #paidpartners at the top, while post 5 is labeled with Instagram (which includes the phrase paid partnership with. . .). The phrase "paid partnership" appears in both types of classification, although in a different form.

Another common element of the posts is that none of them have a face, and the main material is not the product. On both posts, the product is at the bottom of the shot, and both featured products are from the food industry. In terms of the number of followers of the influencers who published these posts, the influencer of post 5 has 120,000 and the influencer of post 4 has 18,100. Each profile is different in size, but they share a common focus: family is one of the main themes in both.

Group 3 – The last group resulting from the cluster analysis is the group of posts 1, 2 and 6. Post 1 is marked with #payment partnerships between hashtags, post 2 is marked with #cooperation between hashtags and post 6 is marked with #cooperation at the beginning of the post.

The first parallel is that all posts are labeled with a hashtag containing a Czech term or phrase. It is possible that the #cooperation for post 6 is not prominently placed, despite being near the beginning of the post, and may be overlooked. The hashtags for the other two posts are hidden among other hashtags and may be overlooked.

The predominant food photography here is mainly in collaboration with a relatively unknown brand. All three posts contain products related to cooking. These brands or products may be less relevant to a specific target group (18–24 years old).

The groups of posts resulting from the cluster analysis differ from one another by influencer size (number of followers), creative postprocessing and awareness of promoted brands.

There are a variety of labeling methods used within each group. The groups represent various marking positions (hashtag at the beginning and end of the post in Groups 1 and 3) and different types of marking.

According to the cluster analysis results, the recognition of advertising is influenced by the size of the influencer (the larger the influencer, the more the post will be recognized as advertising), brand awareness (the higher the brand awareness, the more the ad will be recognized per post) and by placing the ad tag (if the post is tagged at the beginning, the ad will be recognized). The creative processing of the influencer's output, the category of the promoted product, the influencer's focus and the language of the advertisement can all play a role.

5. Discussion and conclusion

According to current research, there are different types of labeling for native advertising, which often leads to insufficient labeling (Eisend *et al.*, 2020; Wojdynski and Evans, 2020; Campbell and Grimm, 2019). The purpose of this study was to compare the types of labeling used for Instagram influencer marketing ads. The results show that the higher the recognition rate of a post tagged in a certain way, the better the tagging method for tagging influencer marketing on Instagram. None of the posts studied had a 100% ad recognition rate.

First, a post labeled with Instagram's platform tool received more ad recognition than other posts. This is in line with the findings of some studies that claim that Instagram platform tools have the highest level of ad recognition (Boerman, 2020; Iacobucci and De Cicco, 2020; Stubb *et al.*, 2019; Van Reijmersdal *et al.*, 2015; Boerman *et al.*, 2014). The possibility of modifying the Instagram tool to increase ad recognition has been proposed. It

could be more prominent or include a phrase that is more understandable in Czech than the current "Paid partnership."

Second, a verbally labeled post received more recognition than posts labeled with a hashtag at the beginning. The post marked with #ad at the start had the highest recognition rate when compared to other posts marked with hashtags as well as posts marked verbally and with the Instagram tool. This is also supported by Instagram research, which found that using the hashtag #ad increases ad recognition (De Cicco *et al.*, 2021; Boerman, 2020; Lou *et al.*, 2019; Evans *et al.*, 2017). Simultaneously, the cluster analysis revealed that the recognition of the advertisement in this post could be influenced by other factors (e.g. foreign language knowledge and influencer size) other than how the advertisement was marked.

There was a higher recognition of advertising in posts from larger influencers, which must be considered when developing an influencer marketing strategy. Boerman (2020), Campbell and Farrell (2020), Kay *et al.* (2020) and Pedroni (2016) examined the impact of influencer size on ad recognition and audience engagement opportunities in greater depth. This implies that our future research should consider other factors that influence advertising recognition.

Third, posts with the Czech hashtags #cooperation and #paid partnerships near the beginning of the post received less ad recognition than expected. Because the label contains Czech phrases and is easier for Czech-speaking respondents to understand, it was assumed that these posts would have a higher level of ad recognition than posts marked with the English #ad. This result corroborates the findings of previous studies (Lou *et al.*, 2021; Kim and Kim, 2021; De Veirman and Hudders, 2019; De Jans *et al.*, 2018; Evans *et al.*, 2017), in which this label demonstrated a higher degree of recognition of the advertisement.

It was also discovered that posts with an ad label at the start had higher ad recognition than most posts with a tag in the hashtags. This result is partially consistent with the studies mentioned in the research section (Stubb *et al.*, 2019; Wojdynski and Evans, 2016; Boerman *et al.*, 2014).

Fourth, the claim that fixation length does not affect ad recognition has been confirmed in Boerman and Müller (2022), Zehetner *et al.* (2021), Wojdynski and Evans (2020), Muñoz-Leiva *et al.* (2019) and Evans *et al.* (2017).

Furthermore, according to the results of the study, it cannot be assumed that everyone will recognize the ad, regardless of how the influencer uses the ad. Therefore, it is recommended that managers and influencers continue to use the standardized and recommended tagging methods – the word tag at the beginning of the post and the Instagram tool.

Conversely, based on our research, we do not recommend the following tagging methods: #collaboration at the beginning of the post, #collaboration between hashtags and #paid partnership between hashtags.

6. Limitation and future research direction

No study is free from limitations, and the present study has some flaws; therefore, further research is needed to address the shortcomings. The major limitations of this study are that the contributions to the material were selected randomly (from real contributions tagged with #collaboration or #paidpartnership).

The selection of influencers by size, e.g. a few influencers from the macroinfluencer category, then microinfluencers and nanoinfluencers, could also affect the results. It would thus be possible to take into account the number of followers for influencers as one of the factors of ad recognition, which was not considered in this paper. Another incentive for

testing is the so-called blindness to hashtags, which is based on the initial low fixation of the article on hashtags.

It will be interesting to see other indicators of recognizability in future research (e.g. interest in a particular topic, creativity of the paper). In addition, it can be recommended that the study be replicated with a larger and more geographically diversified sample in the section on limitations and future research approaches. Advertising recognition based on similar methods has also been addressed by researchers from The Netherlands (Boerman and Müller, 2022) and the USA (Wojdynski and Evans, 2020, 2016), who arrived at similar results. Based on these findings, it can be assumed that our results are not only regional in nature.

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