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INFORMATION MANAGEMENT THROUGH SOCIAL NETWORKS IN SELECTED SPORTS CLUBS

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Purpose: The main purpose of the article is to verify the similarity of ratings of groups of social media types. The study was conducted on speedway sport fans in Poland. An additional aim is to find differences in the perception of the variety of factors influencing the attractiveness and quality of social media pages. The reason for the article was also the need to find a relatively new and easy method to study media diversity in order to make decisions about managing communication with content audiences.
Design/methodology/approach: The main interview method was used to achieve the intended purpose, based on a survey questionnaire targeted at active social media users of speedway clubs. Based on numerical data collected between 21 and 31 October 2024, a hypothesis was made about the homogeneity of social media use and the factors influencing the quality of communication. The data were statistically analysed using the Kruskal-Wallis ANOVA test. The subject of the study was respondents' assessments of the degree of comparability of fads and the factors characterising them. Only the evaluations of respondents who were active on social media were included in the study.
Results: The results of the study provided statistical characteristics to verify the hypothesis of similarity of social media-related characteristics according to the procedure presented.
Limitations/conclusions of the study: The main limitations of the study are the variety of factors that can influence communication management in sports organisations, as well as the multi-channel nature of the methods of reaching stakeholders. The paper focuses mainly on social media differences without identifying the strength of these differences. In the future, this approach can be adapted to address communication management issues, but requires more explicit results.
Practical implications: the Kruskal-Wallis ANOVA method is a modification of the existing ANOVA/MANOVA method. The in-depth method used in this paper was chosen because in comparative tests the basic condition is a normal distribution for the individual series. The method used allows this condition to be bypassed, and this allows it to be used freely to learn about the assessment of social media homogeneity. It provides sports companies with a tool to recognise their competitive position in terms of marketing communication and the effectiveness of its online tools.
Social implications: It is assumed that with the optimal application of the proposed research method, a tool is gained to objectively assess the homogeneity of the media and the factors that characterise it. This allows for a more effective management of communication outside the

sports organisation. The method replaces the qualitative assessment of this management by showing the position among different types of media or factors.
Originality/value: The article targets different companies active in the online space in multiple social media. The novelty is that the data obtained in the face-to-face survey provides a basis for analysis and answers the question of diversity and quality. The method used for social media is included for the first time. Knowledge of the diversity of groups influences communication management.
Keywords: social media, management, communication.
Category of the paper: Research paper.

1. Introduction

Social media are among those means of communication with the corporate environment that still require a great deal of research. The need for research stems from the constant dynamism and flexibility of these media and the variety of issues that have not yet been discovered or are too vast to be studied. There is also still a lack of sufficient scientific tools to enable the efficient management of communication, promotion, pricing policy, etc. Because of this scientific gap, it is necessary to try to understand the power of messages, the behaviour of their recipients, the factors influencing the perceived attractiveness of social profiles or verifying knowledge about the diversity of the types of these profiles.

In the world, social media has been around for a long time. The first definitions of the term emphasise the close relationship of these media with communities, technology and content. C. Treadaway and M. Smith defined social media as a set of technologies for initiating communication and sending content between people, their friends and social networks, which include. A.M. Kaplan and Haenlein as a group of applications based technologically and ideologically on Web 2.0 and allowing the creation and exchange of user-generated content.

Other researchers developed the term and related elements (Larimo et al., 2021; Oprea, 2023; Rhee et al., 2021), and a summary of the definition was provided by T. Aichner et al. including technological solutions as early as 1994 in social media (Aichner et al., 2021).

In Poland, social media have also been dealt with. Even today, due to the multitude of scientific possibilities, it is still a topic that is being addressed, mainly in connection with specific entities such as cultural institutions, museums, local government units and many other forms of activities (Nawrocka, Zaprucka, 2022; Jeż, 2020; Jankowska, 2024).

People around the world are largely engaged and attached to web 2.0 technologies and social media platforms. For the same reason, companies are beginning to see such technologies as effective mechanisms to interact more with their customers. Similarly, related issues of social media marketing have also become the focus of scholars and researchers to expand the current knowledge of such phenomena in the field of marketing (Alalwan et al., 2017).

Social media such as blog, Facebook, Twitter, Instagram, WhatsApp, etc., have gained popularity worldwide (Razak, Latip, 2016; Vinerean et al., 2013; Maryam 2015).

There is a very high correlation between social media and marketing. The specific features of social media and its widespread use have primarily transformed marketing methods from traditional to online, especially in communication (Dahnil, 2014). Social media also enables communication between companies and customers around the world, at any time (Rapp, 2013; Brogi, 2013; Sarangan, Ragel 2014).

Social media marketing can be seen as the business practice of marketing brands, goods, services, information and opinions through a social media platform. In today's business world, marketing activities through social media applications enable companies and customers to discuss and share information with each other. As an interactive platform, social media enables companies to engage existing customers and attract new ones, generate more sales, build brand awareness and brand image (Kietzmann et al., 2011; Chanthinok, 2015; Karimi, Naghibi, 2015).

2. Social media in marketing od sport

As already mentioned, social media marketing has been defined as ‘the use of social media technologies, channels and software to create, communicate, deliver and exchange offers that have value to an organisation's stakeholders’ (Cartwright, 2021; Tuten, Solomon, 2014).

The proliferation of social networks means that their functionality is expanding all the time. Social media allows you to showcase yourself, your company or the products you offer. Profiles can contain all sorts of information on the subject, as well as enabling people to network, exchange information and maintain relationships with site members. In this way, companies can maintain relationships with their customers and receive feedback from them containing opinions on products or services. Social media also allows users' activities to be observed and thus provides an opportunity for companies to showcase their activities, investments or volunteering. In this way, they become a tool for creating a company's image. Each service, although providing similar functions, is based on the different nature of the links and contacts that exist between its users.

The use of social media and its use in business management also depends on generational differences (Karasek, Hysa, 2020). Social media engagement can be understood in many ways. Each social media can also be assessed separately. Engagement is then examined as the intensity of interactions and their implications, vis-à-vis the offers and activities of a brand, product or company, regardless of whether the initiator is an individual or a company. Alongside traditional marketing channels, social networks are being integrated into the

marketing mix. Social media have changed the dynamics of interaction between companies and consumers, who favour this relationship.

In the context of media use, a very important aspect is defining who the audience of media content is (Jacobson et al., 2020). It is the audience that decides what they watch, it is also their judgements that determine the direction in which a medium develops (Jamilat et al., 2022). Audiences through the media also show their power and importance in promoting brands (Susanto et al., 2022). One can venture the view that audiences determine the development of companies.

There are many arenas where social media are present. One of these is sport. Social media has revolutionised the ways in which the world creates, shares and consumes content. The unique characteristics of social media, such as ease of networking, instant global reach, lack of access control and ease of collaboration, have made the various platforms extremely powerful multi-functional tools. At this point, it is important to introduce the definition of social media used in this commentary.

With the rapid expansion of social media, researchers using different methods and perspectives have developed an interest in studying the role of social media in sport. The field of sport research is relatively broad and encompasses a diverse set of disciplines, such as sport law, sport economics, sport marketing, sport finance, sport sociology, sport management, sport tourism, sport facility and event management, sport communication, sport organisation behaviour and theory, and sport for development (Abeza et al., 2015).

Among foreign researchers, the topic of the use of social media in sport has been most extensively covered by T. Newman, J. Peck and B. Wilhide (Newman et al., 2017) dedicating their book ‘Social media in sport marketing’ to this topic. Other researchers have focused on the multi-faceted importance of the Internet in sport from analysing it as a tool for promoting sporting events to researching current media activity (Miranda et al., 2024; Kennedy et al., 2024; Dunn et al., 2024; Bagic Babac, Podobnik, 2024). Academic studies on the use of social media in the management of a sports institution are dominated by case studies, analyses of media effectiveness or media user behaviour.

There are relatively few Polish-language studies on the use of social media in sport. The field is dominated by master's thesis studies or case studies (Bik, 2024; Jurek, 2024).

This article continues the theme of the use of social media in sports institutions in information management (Kowalski, 2024). This article uses the Kruskal-Wallis ANOVA test, which is a non-parametric alternative to the one-way analysis of variance. Using this test, we compare the distributions of several variables (Cole, 1993; Swallow, 1984; Kruskal, Wish, 1978).

The research subjects in this case are respondents who are social media users of sports clubs, and the article is part of a larger research project. Looking more broadly, sports companies are specific in that they hardly compete with each other. The primary method of communication management here is benchmarking, a method that involves comparing the processes and

practices of one's own entity with those of companies considered to be the best in the field under analysis. Another peculiarity of sports organisations is the high level of social media activity. This is due to the nature of the audience of the content (the fan), for whom sport is associated with personal emotions. Social media satisfies the need to be close to sporting events related to the club and its ongoing activities. In most other businesses, this need is not present.

The result of these conditions is a situation in which, theoretically, marketing communications in sports clubs should be almost identical, undifferentiated, homogeneous. Similarly homogeneous, therefore, should be the assessments of the types of social media or the factors influencing the attractiveness of these media. This article aims to verify this opinion.

3. Research methods

The research is part of a larger research project dedicated to the issues of sports companies' communication on the Internet. The aim of this analysis is to verify the degree of similarity in the use of online communication tools by speedway sports clubs in Poland. The basis for the consideration is the evaluations of social media users regarding both the types of media and the factors influencing the attractiveness of individual profiles. The main survey was conducted on 345 people, from which only those with accounts on individual social media sites were selected. The survey ran from 21 to 31 October 2024, until a number of more than 300 respondents was obtained to ensure the desired representativeness of the study. Based on these figures, it was hypothesised that the different types and factors influencing the perception of their attractiveness are homogeneous.

To verify this hypothesis, the numerical data were statistically analysed using the Kruskal-Wallis ANOVA test. Initially, the use of a one-way analysis of variance ANOVA test was considered to determine whether there were statistically significant differences between the predictor groups being compared and the dependent variable. After a preliminary analysis, it was found that the factors did not have a normal distribution. A Kruskal-Wallis ANOVA test, based on ranks, was therefore applied in this case. This test is a non-parametric alternative to the one-way analysis of variance. With this test, we compare the distributions of several (k) variables:

The null hypothesis is that all samples come from one population and the alternative hypothesis is that not all samples come from one population, viz:

- in the case of study 1, the null hypothesis assumes that, regardless of the type of media, their ratings are the same in the user group,
- in the case of study 2, the hypothesis assumes that, irrespective of the factor influencing the attractiveness of a social profile, its ratings are the same in the user group.

The test procedure is based on the calculation of the T-statistic according to the formula 1:

$$T = \frac{12}{n(n+1)} \sum_{i=1}^{k} \frac{R_i^2}{n_i} - 3\,(n+1) \tag{1}$$

where:
R*i* - sum of ranks in the i-th group,
n*i* - abundance of the i-th group,
n - total size of all groups.

If there are no grounds to reject the null hypothesis then the statistic has a $\chi 2$ distribution with k-1 degrees of freedom (right-hand critical area).

This procedure is used to determine whether the respondents' ratings expressed on a Likert scale (answers: strongly agree, agree, have no opinion, disagree, strongly disagree) are homogeneous within the group of social media types and within the group of factors influencing the perception of their attractiveness.

The data were also corrected for according to Dunn's test, introducing a correction for tied ranks according to the formula.

$$C = 1 - \frac{\sum(t^3 - t)}{n^3 - n} \tag{2}$$

where t - the number of cases included in the tied rank.

Once the tied rank has been taken into account, information is obtained on whether the different communities included in the study differ significantly from each other, i.e. in this case, whether the evaluators of the types of social media and the factors influencing their attractiveness are independent of each other or homogeneous in these evaluations. Verification of this opinion is intended to allow a decision to adjust the management of media and information to the degree of diversity shown.

4. The study results

Both the types of social media and the evaluation of their attractiveness were subjected to the same procedure. The study was therefore divided into two parts, and in order to compare the variables in question, the same procedure was used according to the qualitative Kruskal-Wallis ANOVA method, verified by the Dunn post hoc test.

The null hypothesis, stating that regardless of the type of social media, the results are the same (homogeneous), should be rejected when the test statistic is greater than the number defining the critical area with 4 degrees of freedom and an assumed level of significance (0.05).

For the second set of distributions, the null hypothesis that regardless of the factor influencing the attractiveness of the social medium, the results are the same (homogeneous) should be rejected when the test statistic is greater than the number defining the critical area with 6 degrees of freedom and an assumed level of significance (0.05).

The starting point for the calculations was a graph created as a result of a face-to-face survey conducted on a group of active users of individual speedway clubs' social media in Poland. The size of these groups is not constant, as some of the respondents did not answer the question. The study took into account evaluations of the different types of media and evaluations of the factors influencing the perception of the attractiveness of the various profiles of speedway clubs. An additional assumption was made that respondents rated clubs with which they sympathised and whose profiles they were familiar with.

In both parts, the evaluation was based on a Likert scale, and portal users were asked to tick which sentences they agreed with. The first part involved responding to the sentence 'The club runs its Facebook/Instagram/X, Youtube/Tik/Tok profile in an exemplary manner'. The data in graphical form is shown in Figure 1.

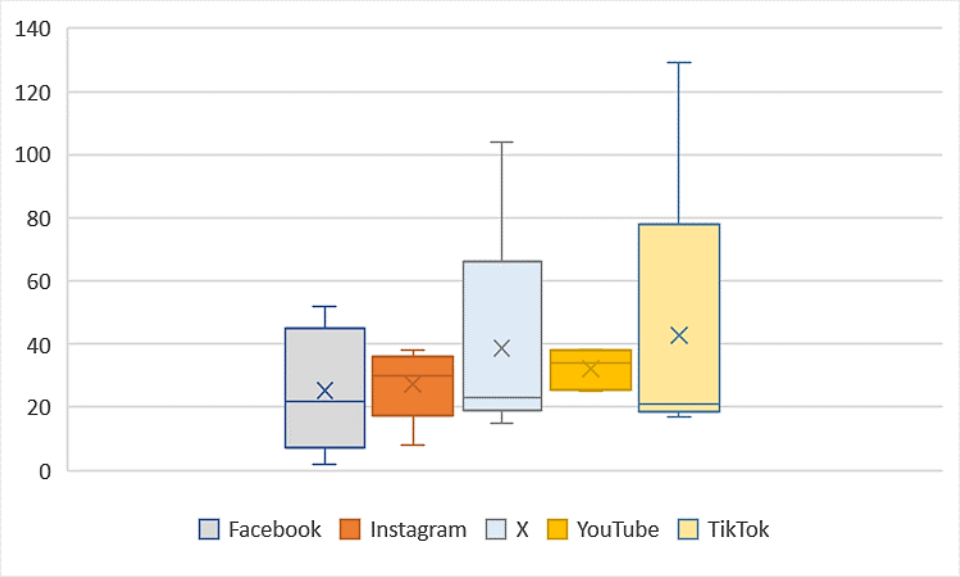

Figure 1. Graphics of social media type ratings.

Source: Own compilation based on data from reaserch.

The graphic presented in Figure 1 gives a cursory idea of how varied the responses are in assessing agreement with the opinion presented. However, this is too little to determine whether the types of social media are statistically evaluated differently by respondents. Therefore, calculations of basic statistical measures have been made and are presented in Table 1.

Table 1.
User ratings of particular types of social media

	Facebook	Rank	Instagram	Rank	X	Rank	YouTube	Rank	TikTok	Rank
I strongly agree	2	1	30	18	104	29	38	22,5	129	30
I tend to agree	12	4	8	2	23	10,5	25	13	21	8
I don't have an opinion	22	9	27	15,5	15	5	26	14	20	7
I don't think I agree	38	22,5	34	19,5	28	17	38	22,5	27	15,5
I strongly disagree	52	26	38	22,5	23	10,5	34	19,5	17	6
Rank summary	**x**	**62,5**	**x**	**77,5**	**x**	**72**	**x**	**91,5**	**x**	**66,5**
Average	126	x	137	x	193	x	161	x	214	x
Standard deviation	25,2	x	27,4	x	38,6	x	32,2	x	42,8	x
Variance	17,92	x	10,38	x	32,96	x	5,67	x	43,22	x
Coefficient of variation	71,1%	x	37,9%	x	85,4%	x	17,6%	x	101%	x

Source: Own compilation based on data from reaserch.

A high degree of homogeneity is apparent in the data in Table 1. The mean of the ratings ranges from 25.2 to 42.8 and the variance from 5.67 to 43.22. The social media that differs most from the others is TikTok. The coefficients of variation expressed by the ratio of the standard deviation to the mean indicate a wide dispersion of individual ratings. The smallest for Yotube, the largest for TikTok.

As the numbers are not clear and sufficient, the procedure presented earlier in this article was used.

This led to the following calculations, from the determination of the empirical statistics to the verification of the null hypothesis that all samples come from one population, and the alternative hypothesis that not all samples come from one population (being homogeneous or heterogeneous). Figures are presented to four decimal places.

$$T = \frac{12}{25(25+1)}\ 5578{,}2 - 3\ (25+1) = \ 0{,}0185 * 5578{,}2 - 78 = 24{,}9822 \qquad (3)$$

Due to the existence of associated ranks in the distribution, post hoc calculations were performed according to the Dunn test, where the coefficient C was 0.9964.

$$C = 1 - \frac{55}{15600} = 0{,}9964 \qquad (4)$$

After adjustment, the final empirical value is the product of the T and C coefficients, i.e. 24.8941 (24.9822*0.9964). The null hypothesis, stating that regardless of the type of social media, the results are the same (homogeneous), should be rejected when the test statistic is greater than the number that defines the critical area with 4 degrees of freedom and an assumed level of significance (0.05). This statistic is 9.9477, so the hypothesis of homogeneity of social media types should be rejected, i.e. the media as perceived by fans/social media users are different from each other and should be managed differently.

As it is too general to verify the hypothesis of homogeneity of social media type, the statistical analysis was deepened by assessing the factors influencing the attractiveness of social media sites. These factors were: curiosities, videos fronting the life of the club, forum (chat), frequency of content updates, games (competitions, fan/user games), site transparency and colour scheme. In this case, as before, the same method of testing homogeneity was used with the Kruskal-Wallis ANOVA test and the Dunn post hoc test. Figure 2 shows the overall magnitudes for these factors in graphical form. In the second part of the survey, respondents responded to the sentence 'I rate curiosities, videos etc.) as exemplary'. The data is shown in Figure 2.

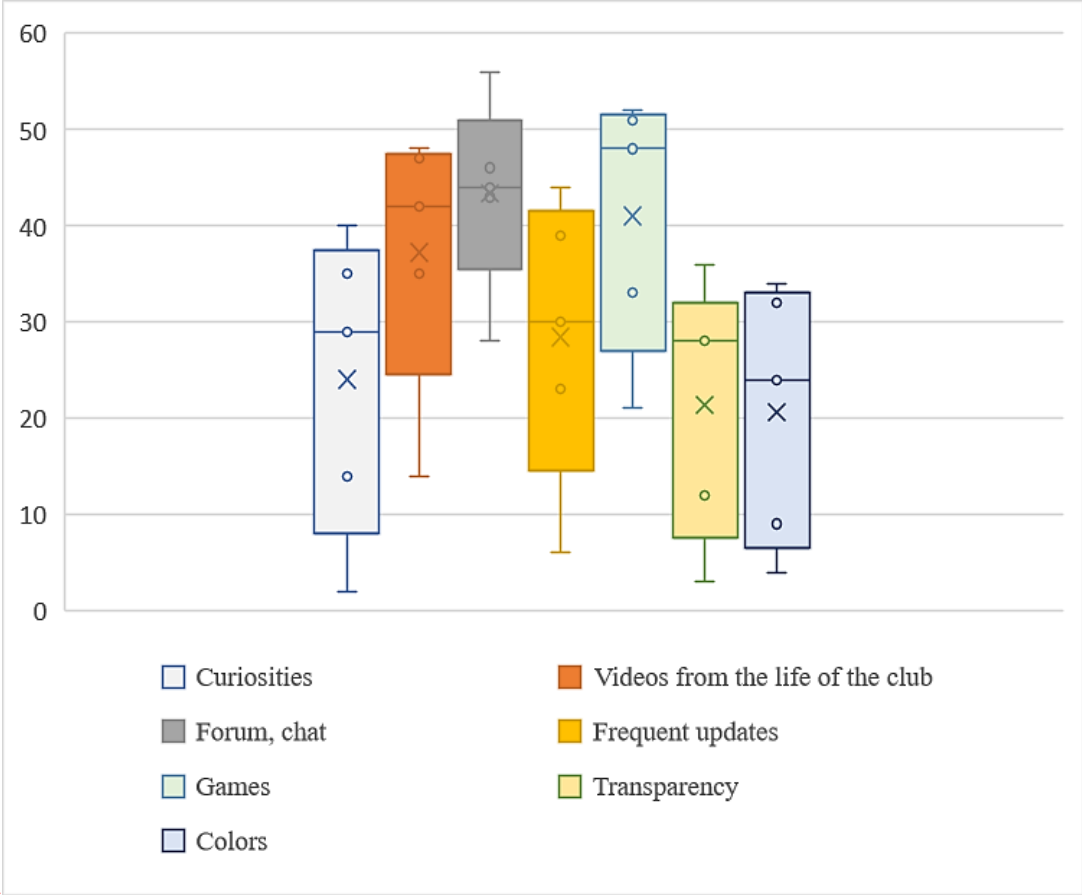

Figure 2. Graphics of assessments of factors influencing the attractiveness of social media.
Source: Own compilation based on data from reaserch.

The graphic in Figure 2 shows a greater variation in scores than in the first part of the study. This is evidenced by a greater spread of means (from 11 to 26.1) and variances (from 40 to 71). However, this is too little to determine whether the factors influencing the perceived attractiveness of social media are statistically differently rated by respondents. Accordingly, calculations were made of the underlying statistical measures, which are presented in Table 2.

In the data of Table 2 in line with the interpretation of the earlier graphic, a relatively large variation is apparent. The mean of the attractiveness ratings ranges from 11.2 to 42.8 and the variance from 40.67 to 98. The factor whose rating differs most from the others is games.

Little variance in the data is apparent here. The coefficients of variation expressed in terms of the ratio of the standard deviation to the mean indicate a wide dispersion of individual ratings (from 29.5% and 33.5% to 58.5%, 58.7% and 56.3%). The variation is smallest for games and greatest for the colour scheme of the site.

Table 1.
User rankings of factors influencing the attractiveness of social media

	Curiosities	Rangi	Videos from the live if the	Rank	Forum, chat	Rank	Frequent updates	Rank	Games	Rank	Transparency	Rank	Colors	Rank
I strongly agree	2	1	14	7,5	28	13	6	4	21	9	3	2	4	3
I tend to agree	14	7,5	35	20,5	44	27,5	23	10	51	33	12	6	9	5
I don't have an opinion	29	15	42	25	46	29	30	16	33	18	28	13	24	11
I don't think I agree	35	20,5	48	31,5	56	35	39	23	52	34	28	13	32	17
I strongly disagree	40	24	47	30	43	26	44	27,5	48	31,5	36	22	34	19
Rank summary	**x**	**68**	**x**	**114,5**	**x**	**130,5**	**x**	**80,5**	**x**	**125,5**	**x**	**56**	**x**	**55**
Average	13,6	x	22,9	x	26,1	x	16,1	x	25,1	x	11,2	x	11	x
Standard deviation	8,41	x	8,62	x	7,23	x	8,50	x	9,92	x	6,85	x	6,32	x
Variance	71	x	74	x	52	x	72	x	98	x	47	x	40	x
Coefficient of variation	33,5%	x	58,5%	x	20,6%	x	46,9%	x	29,5%	x	56,3%	x	58,7%	x

Source: Own compilation based on data from reaserch.

As the numbers are not clear and sufficient, the procedure outlined earlier in this article was used.

This led to the following calculations, from the determination of the empirical statistics to the verification of the null hypothesis that all samples (i.e. the factors influencing the post-regression of attractiveness) come from one population, and the alternative hypothesis that not all samples come from one population (being homogeneous or heterogeneous). The figures are again presented to four decimal places.

$$T = \frac{12}{35(35+1)}\ 12631{,}2 - 3\ (35+1) = \ 0{,}0095 * 12631{,}6 - 108 = 12{,}2971 \qquad (5)$$

Again, due to the existence of associated ranks in the distribution, post hoc calculations were performed according to the Dunn test, where the C-index was 0.9994.

$$C = 1 - \frac{24}{42840} = 0{,}9994 \qquad (6)$$

After adjustment, the final empirical value is the product of the T and C coefficients, i.e. it is 12.5912 (12.2971*0.9994). The null hypothesis, stating that regardless of the type of social media, the results are the same (homogeneous), should be rejected when the test statistic is greater than the number defining the critical area with 6 degrees of freedom and an assumed level of significance (0.05). This statistic is 9.5916, so the hypothesis of homogeneity of social media types should be rejected, i.e. the evaluation of the factors influencing the perception of social media attractiveness differ from each other.

The results of the calculations for both groups show the diversity of the groups, both in terms of types of social media and in terms of factors influencing the attractiveness of social media websites.

The research findings are very accessible for social media management in a sports company, although the same procedures may be available in other companies as well. Research has shown that the respondent, i.e. a fan or customer, uses the medium as one of several social communication channels and this assessment differs from the assessments of users of other media. it is an assessment of factors influencing the attractiveness of social profiles. Information such as interesting facts, updates, videos from club life, forum (chat), games, transparency and changes, despite external schemes and the use of benchmarking by clubs, are advisory in the way they are used. This is provided not only by statistical tests, but even by basic indicators such as means, standard deviation, variance and variability indices. When it comes to the fact that the departments target social media, they are not only top-notch but also undifferentiated, this is very important information for them.

In the future, the evaluation of websites, social media and people's online behavior will need to be carefully examined. Large research opportunities provide multivariate analyses, are still available, but also more diverse differentiated influenza or quantitative analyses.

5. Discussion

The conducted research has shown that, thanks to the modified Kruskal-Wallis ANOVA method, it can be determined that there are differences in assessments between the types of individual social media and the factors influencing the perception of their attractiveness. The main aim of the article is to verify the similarity of the use of communication tools on the Internet by speedway sports clubs in Poland. An additional goal is to find differences in the perception of the variety of factors influencing the attractiveness and quality of social media sites. Therefore, it was verified whether the differentiation of the studied groups was statistically justified. These differences are important because they require a different approach to the management of these media. In practice, this means that companies (sports clubs in this

case) should not use the same means of communication on different social media profiles, but differentiate them depending on their type.

Particularly noteworthy in the research is the use of basic research, i.e. the Kruskal-Wallis ANOVA test and adapting it to the existing conditions in sports marketing to be a method for determining the homogeneity of groups within the research community. This is the first case in Poland of using this method in sports marketing, on the example of sports clubs. The presented Kruskal-Wallis ANOVA analysis does not provide an answer to the strength of group differentiation, but the mere statement that groups are not homogeneous is important and constitutes the basis for further research and practical activities.

The basic benefits of using this method affect the operation of marketing departments of sports clubs. If type groups and factors influencing perceptions of attractiveness were included in marketing communications through social media, they might be the same. In practice, this would mean that ten materials alone could be published in all these media, without the need to use, i.e. computer, shortening materials, replacing or sharing content and other activities. However, if groups are intended for each medium, they should be included in enough extensions that the groups being studied are similar to each other.

The main advantages of Kruskal-Wallis ANOVA methods include:

- relative statistical simplicity,
- ability to adapt methods to the conditions of various companies operating on the Internet,
- possibility of using methods in quantitative and qualitative research,
- separation of groups to be analyzed for classification,
- possibility of using and analyzing data from direct research.

The disadvantage of the method is:

- the need to know statistical analysis methods and the ability to interpret them,
- requirement to use statistical programs or applications,
- the need to appropriately adapt the research material to the method.

When using the Kruskal-Wallis ANOVA method, the researcher must have specific goals in mind. Depending on what is to be examined, specific data may be substituted, while maintaining the principles of logic, representativeness and objectivity.

In an era when information has become publicly available, researchers should use various methods to verify their opinions on predetermined topics. When modifying statistical methods, it is relatively easy to find those that will help in the management process at various levels. The article was based on the use of one of the statistical methods. Its use allowed us to determine the direction in which marketing communication in social media should develop. According to these studies and the research of other researchers, there is an increasing tendency to differentiate communication in the media, which requires a completely different, more individual approach to particular types of media and their users.

References

1. Abeza, G., O'Reilly, N., Séguin, B., Nzindukiyimana, O. (2015). Social media scholarship in sport management research: A critical review. *Journal of Sport Management*, *29*(6), 601-618.
2. Aichner, T., Grünfelder, M., Maurer, O., Jegeni, D. (2021). Twenty-five years of social media: a review of social media applications and definitions from 1994 to 2019. *Cyberpsychology, behavior, and social networking*, *24*(4), pp. 215-222.
3. Alalwan, A.A., Rana, N.P., Dwivedi, Y.K., Algharabat, R. (2017). Social media in marketing: A review and analysis of the existing literature. *Telematics and Informatics, 34*, *7,* pp. 1177-1190. Retrieved from: https://doi.org/10.1016/j.tele.2017.05.008; https://www.sciencedirect.com/science/article/pii/S0736585317301077
4. Appel, G., Grewal, L., Hadi, R., Stephen, A.T. (2020). The future of social media in marketing. *Journal of the Academy of Marketing science*, *48*(1), pp. 79-95.
5. Bagić Babac, M., Podobnik, V. (2023). Wydarzenia sportowe światowej klasy jako areny emocjonalnych wybuchów w mediach społecznościowych. *Soccer & Society, 25(1),* 92-110. Retrieved from: https://doi.org/10.1080/14660970.2023.2229743.
6. Bik, K. (2024). *Zarządzanie wizerunkiem klubu sportowego FKS Stal Mielec*. Praca magisteska. Uniwersytet Jagielloński.
7. Brogi, S., Calabrese, A., Campisi, D., Capece, G., Costa, R., Di Pillo, F. (2013). The Effects of Online Brand Communities on Brand Equity in The Luxury Fashion Industry. *International Journal English Bussiness Management*, *5, 32*, pp. 1-9.
8. Cartwright, S., Liu, H., Raddats, C. (2021). Strategic use of social media within business-to-business (B2B) marketing: A systematic literature review. *Industrial Marketing Management*, *97*, pp. 35-58. Retrived from: https://doi.org/10.1016/j.indmarman. 2021.06.005
9. Chanthinok, K., Ussahawanitchakit, P., Jhundra-Indra, P. (2015). Social Media Marketing Strategy and Marketing Performance: Evidence from E-commerce Firms in Thailand. *AU-GSB E-Journal*, *8, 1,* pp. 1-19.
10. Cole, D.A., Maxwell, S.E., Arvey, R., Salas, E. (1993). Multivariate group comparisons of variable systems: MANOVA and structural equation modeling. *Psychological Bulletin, 114,* pp. 174-184.
11. Dahnil, M.I., Marzuki, K.M., Langgat, J., Fabeil, N.F. (2014). Factors Influencing SMEs Adoption of Social Media Marketing. *Procedia - Social Behaviour. Science, 148*, pp. 119-126.
12. Dunn, R., Kim, J., Poucher, Z.A., Ellard, C., Tamminen, K.A. (2024). A qualitative study of social media and electronic communication among Canadian adolescent female soccer players. *Journal of Adolescent Research*, *39*(2), pp. 272-297.

13. Jacobson, J., Gruzd, A., Hernández-García, Á. (2020). Social media marketing: Who is watching the watchers? *Journal of Retailing And Consumer Services*, *53*, 101774.
14. Jamil, K.D.L., Gul, R.F., Shehzad, M.U., Gillani, S.H.M., Awan, F.H. (2022). Role of social media marketing activities in influencing customer intentions: a perspective of a new emerging era. *Frontiers in Psychology*, *12*, 808525.
15. Jankowska, M. (2024). Audiobranding w erze mediów społecznościowych: nowe wyzwania i możliwości dla kreowania marki w kontekście krótkich form treści dźwiękowych. *Studia de Cultura*, *16*(3), 75-85.
16. Jeż, M. (2020). *Wykorzystanie mediów społecznościowych przez jednostki samorządu terytorialnego w promocji turystyki na przykładzie powiatu limanowskiego*. Praca magisteska. Uniwersytet Jagielloński.
17. Jurek, J. (2024). *Wizerunek sportowca w mediach społecznościowych – na przykładzie aktywności w serwisach społecznościowych siatkarki Martyny Grajber-Nowakowskiej i siatkarza Jana Nowakowskiego*.
18. Kaplan, A.M., Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, *53*(1), 59-68.
19. Karasek, A., Hysa, B. (2020). Social Media and Generation Y, Z – a Challenge for Employers. *Zeszyty Naukowe Politechniki Śląskiej, Organizacja i Zarządzanie, 144,* pp. 237-247.
20. Karimi, S., Naghibi, H.S. (2015). Social Media Marketing (SMM) Strategies for Small to Medium Enterprises (SMEs). *International Journal Information Business. Management, 7, 4,* pp. 86-98.
21. Kennedy, H., Bakhsh, J.T., Pegoraro, A., Taks, M. (2024). Bounded impacts: Measuring residents' social (media) event impacts from a major sport event. *Event Management*, *28*(1), 129-150.
22. Kietzmann, J.H., Hermkens, K., McCarthy, I.P., Silvestre, B.S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Bussines Horizont*, *54, 3,* pp. 241-251.
23. Kowalski, S. (2024). Analysis Of Social Media User Segments As Part Of Content Marketing In Sport. *Scientific Papers of Silesian University of Technology. Organization & Management [Zeszyty Naukowe Politechniki Slaskiej. Seria Organizacji i Zarzadzanie]*, *204*.
24. Kruskal, J.B., Wish, M. (1978). *Multidimensional scaling*. Beverly Hills, CA: Sage Publications.
25. Li, F., Larimo, J., Leonidou, L.C. (2021). Social media marketing strategy: definition, conceptualization, taxonomy, validation, and future agenda. *Journal of the Academy of Marketing Science*, *49*, pp. 51-70.

26. Maryam, A., Maarop, N., Ibrahim, R. (2015). *Factors Influencing Customers Engagement In Social Media For Co-creation In The Fashion Industry Of Saudi Arabia*. International Conference on Information Technology & Society, June, pp. 53-63.
27. Michalska, M., Krystosiak, D., Tomaszewska, E.J. (2024). Budowanie marki klubu piłkarskiego w mediach społecznościowych: analiza studium przypadku Jagiellonia Białystok SSA. *Akademia Zarządzania*, *8(3).*
28. Miranda, S., Gouveia, C., Di Fátima, B., Antunes, A.C. (2024). Hate speech on social media: behaviour of Portuguese football fans on Facebook. *Soccer & Society*, *25*(1), 76-91.
29. Nawrocka, E., Zaprucka, J. (2022). Ocena możliwości wykorzystania mediów społecznościowych przez muzea. *Studia Periegetica*, *4(40).*
30. Newman, T., Peck, J., Wilhide, B. (2017). *Social media in sport marketing*. Routledge.
31. Oprea, C. (2023). Definition of Social Media Influencers and their Relevance for Brand Management. In: *The Effects of Impartiality Disclosure on Brand Objectives for No and Multiple Product Endorsements* (pp. 9-16). Wiesbaden: Springer Fachmedien Wiesbaden.
32. Rapp, A., Beitelspacher, L.S., Grewal, D., Hughes, D.E. (2013). Understanding Social Media Effects Across Seller, Retailer, and Consumer Interactions. *Journal Academic Marketing Science*, *41, 5,* pp. 547-566.
33. Razak, S.A., Latip, N.A.B.M. (2016). Factors that influence the usage of social media in marketing. *Journal of Research in Business and Management*, *4*(2), pp. 1-7. Retrieved from: https://doi.org/10.29119/1641-3466.2020.144.18
34. Rhee, L., Bayer, J.B., Lee, D.S., Kuru, O. (2021). Social by definition: How users define social platforms and why it matters. *Telematics and informatics*, *59*, 101538.
35. Sarangan, B., Ragel, V.R. (2014). The Impact of Engagement with Social Media Marketing on Brand Awareness. *Indian Journal Management Bussiness Society Science*, *2, 2*, pp. 129-136.
36. Susanto, D.N.D., Jeniva, I., Veronica, M. (2022). Brand Knowledge Training Through Packaging Materials And The Use Of Social Media In Hurung Bunut Village, Gunung Mas District. *AMALA Jurnal Pengabdian Kepada Masyarakat*, *1*(2), 81-89.
37. Swallow, W.H., Monahan, J.F. (1984). Monte Carlo comparison of ANOVA, MIVQUE, REML, and ML estimators of variance components. *Technometrics, 26*, pp. 47-57.
38. Tuten, T.T., Solomon, R.R. (2017). *Social Media Marketing.* Paperbackshop UK Import.
39. Vinerean, S., Cetina, I., Dumitrescu, L., Tichindelean, M. (2013). The Effects of Social Media Marketing on Online Consumer Behavior. *International Journal. Bus. Management*, *8, 14,* pp. 66-79.