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A Data-Driven Approach: Assessing the Relevance of AI Algorithms in Tailoring Personalised Content for Social Media Users

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Abstract

In the rapidly evolving landscape of social media platforms, the delivery of personalised content has become crucial to engage users and foster meaningful interactions. Artificial Intelligence (AI) algorithms offer promising solutions to this challenge by leveraging vast amounts of user data to tailor content recommendations to individual preferences. This research presents a comprehensive quantitative analysis aimed at evaluating the effectiveness of AI algorithms in personalising content for social media users.

The key findings will provide valuable insights into the effectiveness of various AI algorithms in delivering personalised content across different social media contexts. We aim to see if AI-driven personalisation significantly enhances user engagement, with tailored content receiving higher interaction rates compared to non-personalised content.

Furthermore, this article study if exists factors that influence the success of AI-based personalisation efforts, including user demographics, content characteristics, and platform-specific features. The analysis highlights the importance of considering these factors when designing and implementing AI-driven content personalisation strategies.

The current state of the scientific literature reveals a growing interest in the use of AI for content personalisation in social media. While previous studies have highlighted the potential benefits of AI-driven personalisation, there remains a need for empirical evidence to quantify its effectiveness and understand its impact on user engagement and satisfaction. The research questions from the questionnaire focus on quantifying the impact of personalised content on user engagement, content relevance, and user satisfaction.

Overall, this study contributes to advancing our understanding of the role of AI in content personalisation and its impact on user experiences in social media environments. Through quantitative analysis, we provide empirical evidence to support the adoption of AI-powered

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personalisation techniques, ultimately leading to more engaging and satisfying user experiences on social media platforms.

Keywords: AI, content, Social Media, consumers, experience.

JEL Classification: M30, M31.

1. Introduction

Since artificial intelligence has started to be on everyone's lips, social media has become even more dynamic. Businesses and influencers started to use this for a variety of complex factors and reasons (Barnes & Rutter, 2019). Amongst them there are other stakeholders like governments, businesses, and NGOs.

In this research we want to evaluate how relevant the AI algorithms are in tailoring custom content for the social media users while discovering their behaviour on these platforms and other variables like: how much time they spend now that artificial intelligence has been widely implemented all over the internet, the degree of transparency of algorithms in the content personalisation process, user perception of control over content displayed by algorithms, personal data protection and privacy concerns, consistency of content recommendations over time, relevance and diversity of suggested content based on the user's past interests and activities, algorithms' ability to take into account context and the right time to display recommended content, the ability of the user to provide feedback and influence the subsequent recommendations of the algorithms, and others.

According to Saima et al. (2023), the algorithm on Instagram's platform tends to show their users customised content on their own preferences and interests. And since Facebook, Instagram, and other platforms merged into Meta, the base algorithm is used all over these platforms. The social media application uses multiple different factors when it personalises and shows content for a specific user. Some examples are: timeliness, relationship, and engagement (Saima et al., 2023). So, whenever someone engages with a post, they are channelling the powerful AI algorithm within the platform. That post has some specific hashtags, colours, images, elements, people who interacted with and other things which are then showed to the algorithm so that after Instagram could recommend you content similar to that. But there is also a downside for businesses who want to use the platform to the best: the algorithm is always updating, and it is the secret of the Meta, so there is limited information around its efficiency in marketing (Saima et al., 2023). Furthermore, there are also ways to cheat the algorithm into thinking something different and recommend you something wrong.

Now, regarding certain AI platforms used to create AI content, there are other specific advantages and disadvantages. We have ChatGPT which can create texts, realistic images, and also videos once OpenAI will release Sora application. If they are used in combination with ElevenLabs who can generate new voices based on the input of a text, some social media users can create a new kind of AI-generated content. The advantages consist of more efficient ways to create content, but there
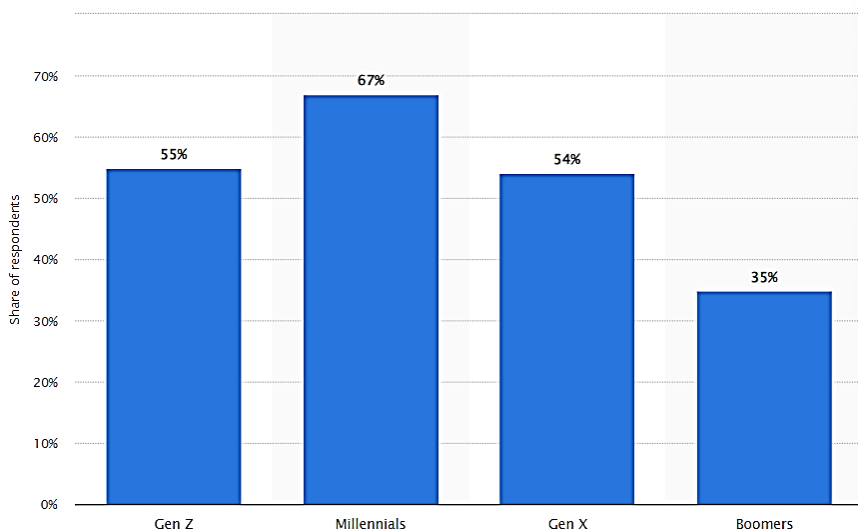
comes a big loophole of disadvantages like: misinformation (Mohamed et al., 2024), "filter bubbles" where AI algorithms reduce and limit the exposure for users to some content (Chen & Zhang, 2022), fake news, and others.

To conclude, this research will offer valuable information of how AI algorithms can tailor the content on social media to user interests and also what are the pitfalls of using it on a daily basis. Algorithmic transparency and ethical strategies can be used to mitigate the bias from the AI algorithms in the social media platforms (Das & Gupta, 2023).

2. Problem Statement

This study will not only be useful for businesses, but also consumers and social media users can take advantage of the information we obtain through this research. The relevance of AI algorithms in personalised content is yet to be one of the main factors that will keep users engaged with content on social media platforms. If we look at the US residents and their support towards the use of artificial intelligence for personalised recommendations (Navarro, 2024) we notice that only Boomers do not necessarily agree to this. Only 35% of boomers want AI for personalised content, while 55% of Gen Z, 67% of Millennials, and 54% of Gen X agree to custom content from brands with the help of AI, as it is shown in Figure 1.

Figure 1. Consumer support for brands using artificial intelligence (AI) to offer personalised recommendations in the United States as of March 2024, by generation

Source: https://www.statista.com/statistics/1463198/consumer-support-brands-ai-personalized-recommendations-generation-united-states/.

Of use, according to Imran et al. (2020), people tend to use social media even more in case of a disaster and emergencies. That's when AI comes in handy, because it can process, analyse and offer a lot of information in a short period of time. Some of the challenges it faces can be the summarisation and the verification of the visual and textual content. And in those times, the classic approaches, to understand the macro elements and to create a big picture, are consuming a lot of time and a lot of work (Imran et al., 2020). As an example, Wang et al. (2020) discovered that AI algorithms for filtration and processing of information on social media can be an efficient way to track and follow the flooding phase and the transitions of the flood for locating and helping incidents of emergency. Using a natural language processing model, they were able to recognise incidents from a few tweets on the social media application Twitter, now called X. Moreover, Ofli et al. (2020) saw that using data from past disasters can be of help to update new other models and different learning techniques based on online activities to adapt and learn so the existing models can predict more accurately.

Using a convolutional neural network (CNN) Inception V3, Barnes and Rutter (2019) analysed different products on social media posts from 226,801 pictures from top 75 social media influencers over a period of 1 year. What did they discover? Through the power of Big Data and AI algorithms, they managed to see what kind of influencers perform the best while comparing the efficiency of engagement from one product with the type of the influencer who promotes that category of product. The general influencers performed the best overall. But influencers who focused on travel content had a better engagement regardless of the product type and influencers who focused on a specific niche, industry or theme gained better engagement for specific types of products.

This is an example where businesses can use artificial intelligence and big data to filter and choose the best influencers for promoting different products to make sure they get the best return on investment. AI will make sure how a specific product will fit for an influencer and what kind of engagement it will generate. Moreover, influencers can use this technology to gather information for optimising their personal content. They can see what kind of products they like and want to promote and change their posts accordingly so that they can gain different sponsorships and also raise their revenue and increase or decrease their audience. But some might ask why would someone decrease the audience? In some cases, it might be more useful if they have a smaller audience which engages more with the posts.

Also big data and certain AI and machine learning algorithms can have an impact on analytics on LinkedIn. Soliman et al. (2019) could predict a job transition with 67% accuracy after they looked at the top 10 predictions on the social media platform. Moreover, the position at the beginning of the career did not contribute as much for the prediction of the end of a career (Soliman et al., 2019), after the research analysed over 9,5 million public profiles from the social media platform LinkedIn.

**Figure 2. Concerns of AI tools replacing jobs per respondents
in the United States 2023**

Source: https://www.statista.com/statistics/1449228/
concerns-ai-tools-replace-jobs-united-states/.
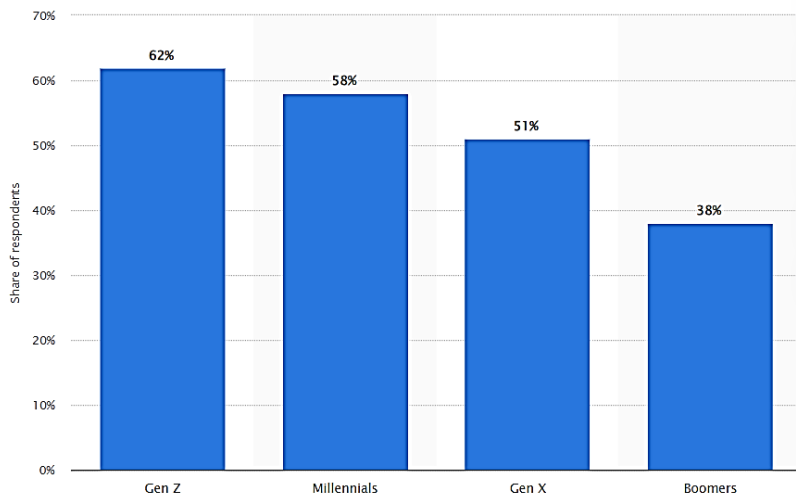
When questioned "How concerned are you, if at all, about the following related to AI offerings like chatbots, image generators, and facial recognition tools?" the younger generations manifested concerns regarding this subject. Over 50% of Gen X, Millennials and Gen Z think AI will replace their job.

In conclusion, there is evidence that people find that AI is relevant to customisation of content in social media and also in real life situations like jobs, disasters, and others, but they require further research, something that we will do in this study. Chen and Zhang (2022), Das and Gupta (2023), Lee et al. (2024), and Wang et al. (2024) explore the importance of ongoing research in this field as long as AI development continues.

3. Research Questions / Aims of the Research

The aim of the research entitled "A Data-Driven Approach: Assessing the Effectiveness of AI Algorithms in Tailoring Personalised Content for Social Media Users" is to explore and understand the efficiency and impact of artificial intelligence (AI) algorithms in customising content for users on social media platforms and also their satisfactions.

The main objective of the research is to thoroughly evaluate the effectiveness of artificial intelligence (AI) algorithms in tailoring personalised content for social media users. This involves a comprehensive examination of how AI-driven algorithms analyse user data and behaviour to customise the content displayed on social media platforms.

Along with the main objective, we highlighted a few secondary objectives:
1. Assessing how much users of Social Media are aware of the use of AI for the personalised content
2. Seeks to understand the impact of personalised content recommendations on the overall user experience, including user satisfaction, engagement levels, and perceived relevance of the content.
3. Examine the influence of personalised content on user satisfaction
4. Discover what ethical considerations finds consumers surrounding data privacy and transparency

4. Research Methods

The research seeks to investigate the impact of such new technologies used in social media on consumer behaviour, including their attitudes, perceptions, and actions towards them.

We carried out exploratory research in the first part of the study, which helped to establish a general framework for the problem investigated using primary data sources. After that, we prepared a quantitative research by using the survey method: a questionnaire with a total number of 19 questions was created, which was administered through the Google Forms platform to a number of 207 respondents between 1 May and 11 of May 2024.

5. Findings

The analysis of the data reveals that more than 90% of our respondents use social media daily, which means that the results of the survey will be valid and very meaningful for our research. For one of the key questions in this survey "how acquainted are you with the use of artificial intelligence algorithms to personalise content on social media platforms?", it was surprising to find out that more than 70% of the respondents stated that they are aware of the use of AI.

In consideration of the findings, the most significant for respondents when it comes to the difference perceived in "the content displayed based on your previous interactions on social media platforms" compared to what is currently happening on social media networks, more than 50% of the respondents said that they see an important difference.

Referring now to objective no. 4, one of the most discussed aspects when it comes to artificial intelligence, namely data collection, privacy and transparency, we also asked the respondents what their opinion is "Are you comfortable with collecting your personal data to personalise content on social media platforms?" and surprisingly or not, almost 60% of them feel comfortable with data collection if it is collected for the mentioned purpose.

Figure 3. Privacy

Are you comfortable with collecting your personal data to personalize content on social media platforms?
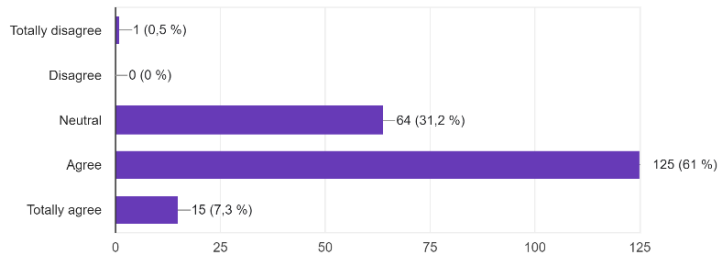206 răspunsuri
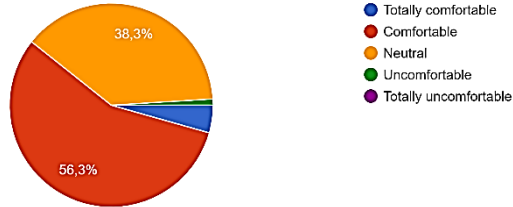
Source: author's own research.

However, over 60% of social media consumers want personalisation algorithms to be more transparent:

Figure 4. Transparency

Do you think AI algorithms should be more transparent about how they personalize content for users?
205 răspunsuri

Source: author's own research.

Lastly, 107 respondents out of 207 admitted that they are "very willing" to engage more with the content displayed based on AI on social media rather than with the content displayed organically. This means that at least at this point in time when we carry out this research, consumers of social media understood that AI is transforming social media, making it more personalised, efficient, and engaging. AI algorithms can analyse user behaviour and preferences to deliver tailored content and recommendations which will become more and more attractive to consumers.

Figure 5. AI vs Organic content

How willing are you to pay attention and engage with content displayed based on AI algorithm recommendations on social media compared to content displayed organically?
206 răspunsuri
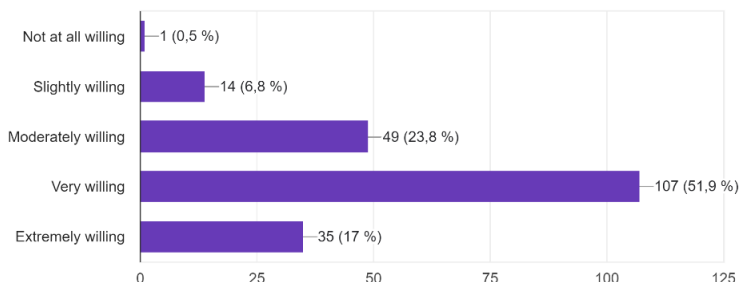
Source: author's own research.

6. Conclusions

The review of relevant literature and the undertaken research highlighted the positive impact of artificial intelligence on consumer experience on social media, considering as well the various ethical challenges associated with its use. Ethical practices, such as data protection and transparency, play a crucial role in ensuring an effective and fair use of any kind of new technologies used on social media. Future research should focus on developing and applying strong ethical guidelines to address these challenges and augment more the benefits of using personalised content on social media. However, even if the objectives of the study were attained, it is crucial to take into account the limitation of this research, more exactly of the limited number respondents of only 207, so it was not satisfactory for statistical measurements. For this reason, the research in order to ensure the accuracy of the study the interview should be further extended to more respondents and also focusing on qualitative research with an interview among social media and marketing experts.

Bibliography

[1] Aldag, R.J., Stearns, T.M. (1991). *Management* (2nd ed.). Cincinnati, OH: South-Western Publishing.

[2] Barnes, S., Rutter, R. (2019). Using Big Data and AI to Examine Product Engagement in Social Media Influencer Posts. 2019 4th International Conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE). doi:10.1109/icitisee48480.2019.9003991.

[3] Chen, J., Zhang, Y. (2022). The filter bubble: How AI algorithms can limit user exposure to diverse content. Social Media & Society, 8(2), 205630512210953.

[4] Choi, J.W., Lee, J.J., Kim, H.K., Lee, S.W. (2019). The role of AI in promoting cognitive flexibility and adaptability in the digital age: A systematic review. Educational Technology Research and Development, 67(2), 437-470.

[5] Choi, S.H., Kim, H., Kim, H. (2021). The role of AI in promoting cognitive surplus and digital literacy in gen Z: A systematic review. Computers in Human Behavior, 129, 106901.

[6] Das, A., Gupta, M. (2023). Mitigating bias in AI-driven content personalization for social media. Proceedings of the ACM on Human-Computer Interaction, 7(CSCW1), 1-18.

[7] Hayes, J.L., Britt, B.C., Evans, W., Rush, S.W., Towery, N.A., Adamson, A.C. (2020). Can Social Media Listening Platforms' Artificial Intelligence Be Trusted? Examining the Accuracy of Crimson Hexagon's (Now Brandwatch Consumer Research's) AI-Driven Analyses. Journal of Advertising, 50(1), 81-91, doi:10.1080/00913367.2020.1809576.

[8] Imran, M., Ofli, F., Caragea, D., Torralba, A. (2020). Using AI and Social Media Multimodal Content for Disaster Response and Management: Opportunities, Challenges, and Future Directions. Information Processing & Management, 57(5), 102261, doi: 10.1016/j.ipm.2020.102261.

[9] Kachamas, P. (2016). Shaping Interactive Marketing Communication (IMC) Through Social Media Analytics and Modelling. Lecture Notes in Computer Science, 675-681, doi: 10.1007/978-3-319-50127-7_59.

[10] Kumar, Y., Goel, N. (2020). AI-Based Learning Techniques for Sarcasm Detection of Social Media Tweets: State-of-the-Art Survey. SN Computer Science, 1(6), doi: 10.1007/s42979-020-00336-3.

[11] Lee, J., Yoon, S., Kim, H. (2024). User perception of AI-driven content personalization on social media platforms. Journal of Computer-Mediated Communication, 29(1), 1-22.

[12] Lewis, D., Moorkens, J. (2020). A Rights-Based Approach to Trustworthy AI in Social Media. Social Media + Society, 6(3), 205630512095467, doi: 10.1177/2056305120954672.

[13] Mohamed, E.A.S., Osman, M.E., Mohamed, B.A. (2024). The Impact of Artificial Intelligence on Social Media Content.

[14] Mou, Y., Xu, K. (2017). The media inequality: Comparing the initial human-human and human-AI social interactions. Computers in Human Behavior, 72, 432-440, doi:10.1016/j.chb.2017.02.067.

[15] Navarro, J.G. (2024). Support to brands using AI for customized suggestions in the U.S. 2024, by generation. Statista. Available at: https://www.statista.com/statistics/1463198/consumer-support-brands-ai-personalized-recommendations-generation-united-states/.

[16] Ofli, F., Imran, M., Alam, F. (2020). Using Artificial Intelligence and Social Media for Disaster Response and Management: An Overview. Disaster Research and Management Series on the Global South, 63-81, doi: 10.1007/978-981-15-4291-6_5.

[17] Saima, S., Parappagoudar, S., Hariharan, A., Setty`, V.S., Jain, A.A., Jain, A., Jain, A.P., Jain, A.R., Banka, D. (2023). "The Power of Instagram's Algorithm in Boosting the Visibility of Startups & Small Businesses." International Journal of Engineering and Management Research, vol. 13, no. 2, 13 Apr. 2023, 59-63, https://doi.org/10.31033/ijemr.13.2.9. Accessed 11 May 2024.

[18] Soliman, Z., Langlais, P., Bourg, L. (2019). Learning Career Progression by Mining Social Media Profiles. Lecture Notes in Computer Science, 446-452, doi: 10.1007/978-3-030-18305-9_43.

[19] Thormundsson, B. (2024). Concerns of AI tools replacing jobs per respondents in the United States 2023. Statista. Available at: https://www.statista.com/statistics/1449228/concerns-ai-tools-replace-jobs-united-states/.

[20] Wang, R.-Q., Hu, Y., Zhou, Z., Yang, K. (2020). Tracking Flooding Phase Transitions and Establishing a Passive Hotline with AI-Enabled Social Media Data. IEEE Access, 1-1, doi: 10.1109/access.2020.2994187.

[21] Wang, Y., Li, J., Liu, Z. (2024). The future of AI-driven content personalization: Balancing user preferences with algorithmic transparency. Computers in Human Behavior, 142, 107521.