EXPLORING AI AWARENESS AND ITS ROLE IN INTERNET MARKETING AMONG STUDENTS IN LITHUANIA AND POLAND

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ABSTRACT

This study investigates the awareness and role of Artificial Intelligence (AI) in internet marketing among students in Lithuania and Poland. AI has revolutionized digital marketing by enabling personalized content, enhancing user experiences, and optimizing marketing strategies through machine learning, natural language processing, and data analytics. The research involved a sample of 400 students, equally divided between Lithuania and Poland, with varied demographics in terms of gender, age, and educational level. The survey, conducted remotely via Google Forms, revealed that while there is a foundational awareness of AI's application in marketing, significant differences exist in the levels of understanding and engagement between the two countries. The findings indicate that AI-driven personalization is recognized but also raises ethical concerns, particularly regarding data privacy and security. Despite these concerns, there is a general acceptance of AI's potential to enhance marketing effectiveness. The study underscores the need for businesses to educate consumers about AI functionalities and adopt transparent data practices to build trust. Future research should expand the sample size and include diverse demographics to provide a more comprehensive understanding of AI's impact on

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digital marketing. This research contributes valuable insights into the dual role of AI in personalizing content and addressing privacy concerns, offering actionable recommendations for leveraging AI in ethical and effective ways.

Key words: AI, marketing, online, Lithuania, Poland.

1. International food and energy market

Artificial Intelligence (AI) has become a cornerstone in the evolution of digital marketing, offering unparalleled opportunities to personalize content, enhance user experiences, and optimize marketing strategies. By utilizing machine learning, natural language processing, and data analytics, AI has enabled marketers to transition from traditional methods to data-driven approaches. According to Babatunde et al. (2024), AI-driven personalization has redefined consumer engagement, tailoring content to individual preferences and improving the overall effectiveness of marketing campaigns. These advancements reflect a fundamental shift in how businesses connect with their audiences in a digital-first world.

Alqurashi et al. (2023) delve into the broader implications of AI in personalized marketing, highlighting its ability to analyze vast datasets and deliver customized messaging. They argue that such strategies significantly enhance consumer satisfaction and brand loyalty, creating a competitive edge in crowded markets. Choi and Lee (2024) add to this narrative by showcasing the potential of AI in profiling consumer behavior, predicting purchasing trends, and optimizing marketing efforts to align with user preferences. Similarly, Ridha (2024) emphasizes the importance of balancing innovation with ethical considerations in AI-driven marketing. While AI can optimize personalization, it also necessitates robust frameworks for data protection and transparency, addressing growing concerns around privacy violations.

Despite its benefits, the integration of AI into marketing strategies is not without ethical challenges. Babatunde et al. (2024) emphasize that as AI systems rely heavily on consumer data, concerns about data privacy and ethical use have risen. Similarly, Alqurashi et al. (2023) discuss the growing need for transparency in how data is collected and processed, particularly as users become increasingly aware of potential breaches of trust. Balancing the advantages of AI-driven personalization with the ethical implications of its use remains a critical challenge for businesses and policymakers alike.

This study aims to explore the dual role of AI in digital marketing, focusing on its ability to personalize content while addressing the privacy concerns it raises. By examining these dynamics, the research seeks to provide actionable insights that enable businesses to leverage AI effectively while fostering ethical practices and maintaining consumer trust.

2. Analysis of original research

The research sample consisted of 400 people, with equal proportions coming from Lithuania (200 people) and Poland (200 people). In terms of gender, the proportion of participants varied: 183 people were female (45.75%), 214 were male (53.5%) and 3 people declared another gender (0.75%). Participants from Lithuania included 83 women, 115 men and 2 people with a different gender, while those from Poland included respectively: 100 women, 99 men and 1 person of a different gender.

The age of the respondents ranged from 19 to over 25 years, with the largest group being participants aged 20 years -82 participants from Lithuania (41% of the sample in Lithuania) and 61 participants from Poland (30.5% of the sample in Poland). The least numerous group was people aged 24 and over 25 in Lithuania with only 4 and 7 people respectively, and 5 and 7 in Poland.

Participants also differed in terms of educational level. In both Lithuania and Poland, the largest group were second year university students: 93 people in Lithuania (38 women and 54 men and 1 other) and 67 people in Poland (31 women and 36 men). The smallest group in Poland were participants at master's or postgraduate level (3 women and 1 man), while in Lithuania 1 woman and 1 man at master's/postgraduate level but also in their 5th year of study.

The survey was conducted remotely using a Google form, which allowed for efficient outreach to a wide range of respondents from Lithuania and Poland. The data collection process started in November 2024 and ended in December 2024. The chosen research method ensured the anonymity of the participants and allowed responses to be collected at their convenience, increasing the reliability and representativeness of the results.

This study represents an important step in analysing perceptions of the usability of artificial intelligence. Due to the limited sample size and its focus on two countries, these results can be considered as a basis for further research, which could include a broader spectrum of respondents from different countries or age groups.

It is worth noting that the results of the survey not only highlight current trends in the use of AI, but also provide valuable insights into potential directions for the technology. A particularly interesting thread that may be developed in future analyses is the difference in perceptions of AI between countries, which may be due to cultural, economic or educational backgrounds.

All in all, the study provides a solid foundation for further deliberation and exploration of the impact of AI on various aspects of life. Its continuation could contribute to a deeper understanding of the technological transformation of societies and identify areas where AI could play a key role in the future.

2.1. Awareness and knowledge of AI in marketing

Awareness and knowledge of the use of artificial intelligence (AI) in online marketing play a key role in shaping consumer opinions on personalized advertising and recommendations. AI technologies are increasingly used to analyse data and adapt content to individual user preferences, which can affect their purchasing decisions (Jarek, Mazurek, 2019). At the same time, the different levels of consumer awareness of such practices raise questions about their acceptance and perceived benefits and risks. This subsection will analyse respondents' answers regarding awareness of AI applications in marketing and opinions on personalized advertising content, which will allow for a better understanding of consumers' approach to this issue.

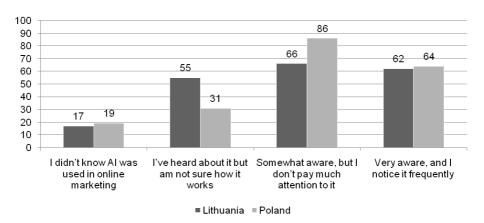


Figure 1. How aware are you that AI is used in internet marketing to personalize ads and recommendations you see online?

Source: own elaboration based on figures from the author's study.

The analysis of awareness regarding the use of artificial intelligence (AI) in internet marketing among respondents from Poland and Lithuania reveals varying levels of understanding and engagement. The survey results indicate that a small percentage of individuals in both countries are completely unaware of AI's role in online marketing, with 17 respondents from Lithuania and 19 from Poland indicating that they did not know AI was utilized for this purpose, resulting in a total of 36 respondents.

A more significant group expressed limited understanding, with 55 Lithuanians and 31 Poles stating that they had heard about AI but were unsure how it works. This suggests that while there is some awareness, particularly among Lithuanians, there remains a lack of clarity regarding the functionalities and implications of AI in marketing.

The survey further categorized responses into those who are somewhat aware but do not pay much attention to AI's application. Here, 66 respondents from

Lithuania and 86 from Poland identified with this statement, indicating that while they recognize the presence of AI in their online experiences, they do not actively engage with or consider its impact. This category represents a substantial portion of the surveyed population, particularly in Poland.

In contrast, the responses also highlighted a notable segment of individuals who are very aware of AI's role in marketing. Both countries reported similar figures in this category, with 62 Lithuanians and 64 Poles stating that they frequently notice AI's influence on their online interactions. This parity suggests a growing consciousness about the implications of AI-driven personalization among consumers in both nations.

Overall, the findings illustrate a foundational awareness of AI's application in internet marketing among Poles and Lithuanians, coupled with significant differences in their levels of understanding and engagement. The data indicates that while there is recognition of AI's presence, particularly among Polish respondents who tend to be somewhat aware yet indifferent, there is also an opportunity for marketers to enhance consumer education about AI functionalities. This could foster greater engagement and trust in personalized marketing strategies, aligning with broader trends in consumer expectations for tailored online experiences driven by technological advancements.

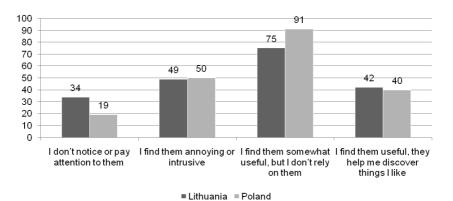


Figure 2. How do you feel about AI-based personalized ads and recommendations on social media or websites?

Source: own elaboration based on figures from the author's study.

The analysis of attitudes toward AI-based personalized ads and recommendations on social media and websites among respondents from Lithuania and Poland reveals a spectrum of perceptions, ranging from indifference to appreciation. The survey results indicate that a notable portion of individuals, specifically 34 respondents from Lithuania and 19 from Poland, reported that they do not notice or pay attention to personalized ads, leading to a total of

53 respondents in this category. This suggests a degree of disengagement with AI-driven content among some users.

In contrast, a significant number of respondents expressed negative sentiments regarding personalized ads. Specifically, 49 Lithuanians and 50 Poles indicated that they find these advertisements annoying or intrusive, culminating in a total of 99 respondents. This response highlights a critical perspective on the perceived intrusiveness of AI personalization, suggesting that while users are aware of these ads, they may not appreciate their presence.

The survey also captured responses from those who view personalized ads as somewhat useful but do not rely on them. In this category, 75 respondents from Lithuania and 91 from Poland identified with this sentiment, resulting in a total of 166 respondents. This indicates that while many individuals recognize some utility in personalized recommendations, they maintain a level of skepticism or caution regarding their overall reliability.

Finally, the survey included those who find personalized ads useful and believe they help them discover things they like. Here, the responses were relatively balanced, with 42 Lithuanians and 40 Poles expressing positive sentiments about the utility of these ads, leading to a total of 82 respondents. This suggests that there is a segment of the population that appreciates the role of AI in enhancing their online experiences by facilitating relevant discoveries.

Overall, the findings illustrate a complex landscape of attitudes toward AI-based personalized advertising among Poles and Lithuanians. While there is a segment of users who are indifferent or critical of these ads, there is also recognition of their potential usefulness. The data indicates an opportunity for marketers to address concerns about intrusiveness while emphasizing the benefits of AI-driven personalization. By doing so, they may enhance user engagement and satisfaction with personalized content on social media and websites.

2.2. Perceptions of AI and personalisation

The perception of artificial intelligence (AI) and its role in personalizing marketing content raises numerous discussions and emotions among consumers. AI is increasingly replacing human creativity, which leads to the question of whether content created by machines can match the quality of human works. At the same time, this technology is changing the prospects for the future of advertising, where automation may become the norm (Taddeo, Floridi, 2018). The survey included respondents' answers regarding their opinions on the quality of content created by AI and their predictions for the future of advertising based on AI. The results will allow for a better understanding of how consumers perceive the impact of AI on the advertising industry and its potential in creating marketing content.

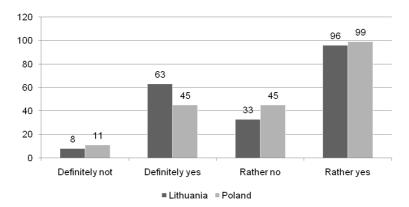


Figure 3. Do you think that content created by AI is usually worse than that created by humans?

Source: own elaboration based on figures from the author's study.

The above chart shows responses to the question: "Do you think AI-generated content is generally worse than human-created content?"

Comparing both countries, it is evident that in both Lithuania and Poland, the majority of respondents believe that AI-generated content is worse than human-created content. However, in Poland, more people strongly agree with this statement (99 people) compared to Lithuania (63 people). On the other hand, in Lithuania, a larger number of respondents somewhat agree with this statement (96 people) than in Poland (45 people). Both countries have a similar number of respondents who disagree with this statement, although in Poland, there are slightly more people who strongly disagree (11 people) compared to Lithuania (8 people).

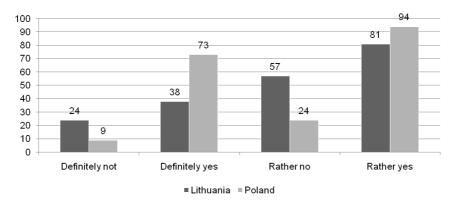


Figure 4. Do you think that in the future most advertising content will be created by AI? *Source: own elaboration based on figures from the author's study.*

The above chart shows responses to the question: "Do you think that in the future, most advertising content will be created by AI?"

Comparing both countries, it is evident that in both Lithuania and Poland, the majority of respondents believe that in the future, most advertising content will be created by AI. In Poland, a larger number of respondents somewhat agree with this statement (94 people) compared to Lithuania (81 people). On the other hand, in Lithuania, a larger number of respondents somewhat disagree with this statement (57 people) than in Poland (24 people). In Poland, more people strongly agree with this statement (73 people) compared to Lithuania (38 people). Both countries have a relatively small number of respondents who strongly disagree with this statement, although there are more in Lithuania (24 people) than in Poland (9 people).

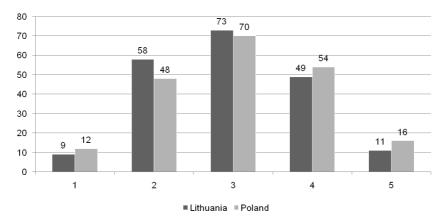


Figure 5. On a scale of 1 to 5, how much do you think AI enhances the creativity of online marketing campaigns?

Source: own elaboration based on figures from the author's study.

Data provides respondents answers rating the extent to which they believe AI contributes to creative efforts in marketing campaigns on a scale of 1 to 5, with 1 meaning "Not at All", 2 meaning "A little", 3 meaning "Moderately", 4 meaning "Significantly" and 5 meaning "Extremely."

In Lithuania, most participants (73) viewed AI's impact as moderate, indicating it contributes to creativity but not in a transformative way. A group of 49 respondents recognized a more significant impact, while only a few (11) considered it highly influential. A portion of respondents (9) were skeptical, rating AI's creative influence as minimal or nonexistent.

In Poland, a similar trend emerged, with most respondents (70) seeing AI's role as moderate. However, a larger group of 54 acknowledged a more substantial impact, and a few (16) believed it played a significant role in enhancing creativity.

Skepticism was also present, with 12 people considering AI's impact limited or nonexistent.

When comparing the two countries, both show a generally moderate perception of Al's creative influence, with some recognizing its potential but not viewing it as revolutionary. Both nations display similar levels of skepticism regarding Al's effectiveness in marketing creativity.

2.3. Concerns about AI

The use of AI in online marketing raises numerous controversies and concerns, which concern both ethical and practical aspects. Key consumer concerns focus on issues related to privacy, data security, and the potential undue influence of AI on their daily lives. Collecting data on user interests and activities for the purpose of personalizing ads raises concerns about privacy violations, while also raising questions about the limits of acceptable technological interference in individual lives. In this context, it becomes important to understand what specific concerns are present in the minds of consumers and how they can be minimized in order to build trust in AI-based solutions in marketing.

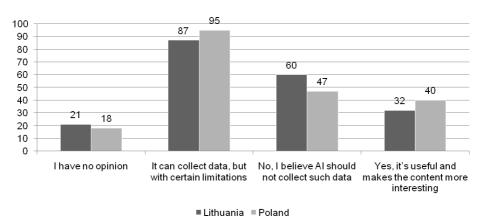


Figure 6. Do you think that AI in marketing should collect data about your interests and online activities to better tailor advertising content?

Source: own elaboration based on figures from the author's study.

The data pertains to responses to the question, "Do you think that AI in marketing should collect data about your interests and online activities to better tailor advertising content?" The responses are categorized into four options: "I have no opinion," "It can collect data, but with certain limitations," "No, I believe AI should not collect such data," and "Yes, it's useful and makes the content more interesting."

In Lithuania, the largest group, consisting of 87 respondents, believes that AI can collect data but with certain limitations. However, 60 respondents are against AI collecting data, which highlights notable skepticism. Additionally, 32 respondents feel that such data collection is useful and improves content, while 21 respondents do not have an opinion on the matter.

In Poland, a majority of 95 respondents also agree that AI can collect data but only with certain limitations. A smaller group of 47 respondents opposes data collection by AI, which is less than the corresponding group in Lithuania. Furthermore, 40 respondents in Poland find data collection useful, which is a higher number than in Lithuania. Only 18 respondents expressed no opinion on this topic.

Both countries show a majority supporting AI data collection with certain limitations, with 87 respondents in Lithuania and 95 in Poland. However, opposition to data collection is more prevalent in Lithuania, where 60 respondents expressed this view compared to 47 in Poland. On the other hand, Poland has a slightly higher number of respondents (40) who view data collection as useful compared to Lithuania (32). Overall, the trend indicates that while most respondents in both countries accept limited AI data collection, Lithuanians exhibit greater skepticism toward the practice.

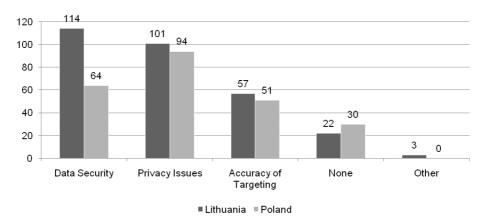


Figure 7. What concerns, if any, do you have about the use of AI in internet marketing? (Select all that apply)

Source: own elaboration based on figures from the author's study.

The following data examines respondents concerns regarding the use of AI in internet marketing, focusing on privacy issues, data security, and targeting accuracy.

In Lithuania, privacy issues were the most prominent concern, with a significant portion of 94 respondents highlighting this as a major issue. Data security also raised concerns, though to a lesser extent of 64, while fewer participants (51) were worried about the accuracy of AI's targeting. A small amount of respondents expressed no concerns and no one mentioned other concerns.

In Poland, privacy issues were similarly a major concern with 94 respondents marking it, though data security topped the list as the most pressing issue for 114 respondents. Concerns about targeting accuracy were also present but less significant. A similar proportion of Polish respondents reported no concerns, with a small group mentioning other issues.

Comparing the two countries, both Lithuania and Poland show a strong focus on privacy and data security as key concerns. However, Poles are more concerned about data security, while Lithuanians place a slightly higher emphasis on privacy. Both countries exhibit relatively low levels of concern about targeting accuracy, with a small minority expressing no concerns at all.

2.4. Interaction with AI recommendations

Artificial intelligence (AI) is playing an increasingly important role in every-day life, adapting its functions to the diverse needs of users. The frequency of AI use and its application areas indicate the growing integration of this technology in education, work and entertainment. Understanding how often and in what contexts AI is used allows us to assess its importance in everyday activities and its potential impact on the development of individual sectors. Analyzing respondents' answers to these questions allows for a better understanding of both the benefits and limitations of AI-based systems.

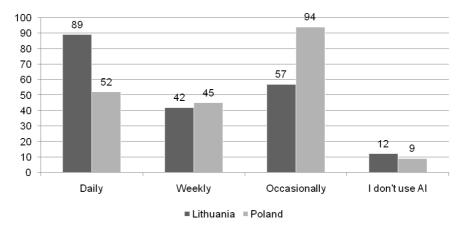


Figure 8. How often do you use AI?

Source: own elaboration based on figures from the author's study.

This graph contains the responses to the question: "How often do you use AI?". The answers are put into four categories: "Daily", "I don't use AI", "Occasionally" and "Weekly".

Out of 400 respondents 140 of them indicated that they use AI on a daily basis. This highlights the increasing integration of AI into everyday life and its importance across various sectors. This consistent daily usage suggests a growing reliance on AI technologies, possibly reflecting trends in automation, convenience, and enhanced productivity.

The option that received the least amount of answers was "I don't use AI". This supports the statement above. Whether for personal use, work-related tasks, entertainment, or education, AI is becoming an essential tool for many people.

The majority of respondents answered that they use AI occasionally. This shows that even when the usage of artificial intelligence is growing at great speeds people still try to rely on their own knowledge/research.

Almost 90 people responded that they use AI once a week. The data suggests that AI is becoming increasingly integrated into people's routines, particularly in work-related tasks, education, or entertainment, but it may not yet be essential for everyone on a daily basis."

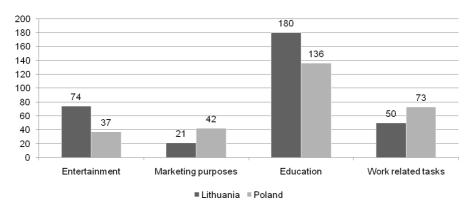


Figure 9. In which areas do you find AI most useful?

Source: own elaboration based on figures from the author's study.

In Poland, artificial intelligence (AI) is most often seen as most useful in education, with 136 people indicating this response. The next area in which AI was considered useful were work-related tasks, which were indicated by 73 people. This was followed by 42 people who found AI most useful for marketing purposes, and the smallest number of respondents (37 people) indicated entertainment as the main area of AI use.

Lithuanian respondents indicated education as the area where AI is most useful – this answer was selected by as many as 180 people, which is the highest value in the chart. In second place there was entertainment, which was indicated by 74 respondents. Significantly fewer people found AI most useful in professional work, with 50 indications. Marketing as an application area for AI received the fewest responses, with only 21 indications.

In both countries, AI is seen primarily as a tool to support education, which may indicate the high importance of modern technologies in the education process. In Poland, more importance is given to AI applications in professional work and marketing, which may be due to differences in the structure of the economy and the labour market. In Lithuania, on the other hand, AI is more often associated with entertainment, which may reflect different priorities or patterns of technology use in the country.

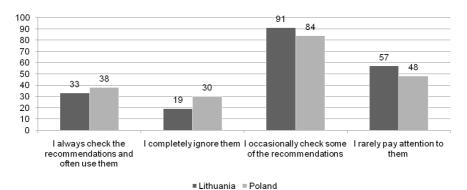


Figure 10. How do you respond to AI-based product or content recommendations that you see on social media?

Source: own elaboration based on figures from the author's study.

The data relates to responses to the question, "How do you respond to Albased product or content recommendations that you see on social media?" The responses are divided into four categories: "I always check the recommendations and often use them," "I completely ignore them," "I occasionally check some of the recommendations," and "I rarely pay attention to them."

In Lithuania, the majority of respondents, numbering 91, occasionally check AI-based recommendations. Additionally, 57 respondents rarely pay attention to these recommendations. Only 33 respondents actively use recommendations, while 19 respondents completely ignore them.

In Poland, a similar pattern emerges, with 84 respondents occasionally checking recommendations, though this is slightly fewer than in Lithuania. However, fewer Polish respondents (48) rarely pay attention to AI recommendations compared to Lithuanian respondents. A larger group in Poland (38 respond-

ents) actively uses recommendations, which is higher than in Lithuania. On the other hand, 30 respondents in Poland completely ignore recommendations, which is more than the 19 respondents in Lithuania who reported the same.

The majority in both countries occasionally check AI-based recommendations, with 91 respondents in Lithuania and 84 in Poland. Poland shows a slightly higher number of respondents (38) actively using recommendations compared to Lithuania (33). However, more respondents in Poland (30) completely ignore AI recommendations than in Lithuania (19). These results suggest a general tendency in both countries to occasionally engage with AI-based recommendations, with Polish respondents displaying a slightly greater inclination to actively use them.

3. Conclusions

A study on the awareness of AI and its role in digital marketing among students from Lithuania and Poland provided valuable insights into the perception of AI in these countries. The research hypothesis was that students see AI as an important component of digital marketing, helping to streamline various processes and deliver and adapt advertising content faster, while raising privacy concerns. The results of the study confirmed this hypothesis.

On the basis of this study, the following conclusions have been drawn. Students from Lithuania and Polish have a basic understanding of the use of AI in online marketing, although the level of understanding and engagement differs slightly between the two countries. Poles are more aware, but also indifferent, which indicates the need to educate consumers about AI functionalities.

Most respondents believe that AI-generated content is worse than that created by humans. However, there is a belief that in the future, most advertising and marketing content will be created by artificial intelligence. Both countries also show moderate perceptions of AI's creative impact on marketing content, which is combined with some skepticism about its effectiveness.

Key concerns relate to privacy, data security, and the excessive impact of AI on daily life. Poles are more concerned about data security, while Lithuanians place more emphasis on privacy. For example, large corporations such as Google, Amazon or Facebook collect and analyze huge amounts of data and information about their users, which allows them to better understand user needs and tailor offers, but at the same time it can weaken the sense of privacy among customers.

AI is seen as a tool that supports education, professional work and marketing. Most respondents rely on AI-based recommendations quite occasionally, with Poles showing a greater tendency to use them more actively.

The above study also made several recommendations for entrepreneurs who want to better use artificial intelligence in their company's marketing.

The first recommendation is that business owners should invest in educating consumers about the functionality and benefits of using AI in personalized marketing strategies to increase their engagement and trust in this type of activity. It is also important that companies have a transparent policy on how they collect and use personal data, which can help build trust and reduce consumer concerns. Entrepreneurs should also use ethical activities in the field of AI, taking care of the privacy and security of user data, which is crucial for maintaining a positive brand image. A final recommendation on how to use AI in your business is that businesses should strive to personalize content while avoiding excessive intrusiveness to increase customer satisfaction and engagement.

The study provides a solid basis for further consideration and exploration of the impact of artificial intelligence on various aspects of life such as business, security and everyday life. He confirms that AI is seen among students as an important element of digital marketing that can increase the effectiveness of campaigns. At the same time, it can be seen that it raises privacy concerns. Further research could contribute to a deeper understanding of the many benefits of AI-based digital marketing, especially in the context of a complex online environment where rapidly changing trends and customer expectations require dynamic marketing strategies and constant analysis of current activities.

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