

ChatGPT and Consumers: Benefits, Pitfalls and Future research agenda

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Abstract

This article discusses multidimensional benefits and potential pitfalls of using Artificial Intelligence (AI)-based Chat Generative Pre-trained Transformer (ChatGPT), and provides numerous ideas for future research in consumer studies and marketing in the context of ChatGPT. ChatGPT, provides algorithm-generated conversational responses to text-based prompts. Since its launch in the late 2022, ChatGPT has generated significant debate surrounding its hallmarks, benefits and potential pitfalls. On the one hand, ChatGPT can offer enhanced consumer engagement, improved customer service, personalization and shopping, social interaction and communication practice, cost-effectiveness, insights into consumer behaviour and improved marketing campaigns. On the other hand, potential pitfalls include concerns about consumer well-being, bias, misinformation, lack of context, privacy concerns, ethical considerations and security. The article concludes by outlining a potential future research agenda in the area of ChatGPT and consumer studies. Overall, this paper provides valuable insights into the benefits and challenges associated with ChatGPT, shedding light on its potential applications and the need for further research.

Keywords ChatGPT, benefits, pitfalls, research agenda

1. ARTIFICIAL INTELLIGENCE TOOLS AND CHAT GENERATIVE PRE-TRAINED TRANSFORMER

Artificial intelligence (AI) based applications such as ChatGPT have revolutionised the way consumers think, behave and live in this post-pandemic era. Like Google and Yahoo search engines, ChatGPT provides immediate answers and responses to almost every question users ask for. ChatGPT is an artificial intelligence (AI) natural language processing (NLP) model that applies generative AI techniques to provide algorithm-generated conversational responses to question prompts (van Dis et al., 2023). It has defined itself as:

‘... a large language model developed by OpenAI that uses deep learning techniques to generate human-like responses to text-based prompts. It is trained on a large corpus of text data using unsupervised learning techniques to learn the statistical patterns and regularities of human language and use that knowledge to generate coherent and contextually appropriate responses’.

AI and NLP chatbots have recently increased the power of consumer marketing and the effectiveness of customer service (Dwivedi et al., 2021; Balakrishnan et al., 2021). Consumers express satisfaction with AI digital assistants (Pizzi et al, 2021). With the huge popularity of ChatGPT, the trend towards the use of consumer-facing AI and NLP chatbots is expected to accelerate (Wang et al., 2023). In just five days from its launch, ChatGPT had over one million registered users, and in a month, the number of active users exceeded one hundred million (Ahmed, 2023). It took well-known companies much longer to achieve one million users, for example, Netflix 3.5 years, Airbnb 2.5 years, Twitter 2 years, Facebook 10 months, Dropbox 7 months, Spotify 5 months, and Instagram 2.5 months (Ahmed, 2023). ChatGPT's versatility is apparent through its use in various applications, including chatbots, language translation, and text generation tasks. It provides natural and human-like responses in real-time, with the flexibility to be customized and can scale to meet user demands. Although not yet as accurate

in languages other than English and neo-Latin languages (Bang et al., 2023), ChatGPT is accessible anytime, anywhere, to anyone.

When it comes to searching for information, ChatGPT is often considered superior to Google. Unlike Google, which often returns a large amount of information that we must sift through on our own, ChatGPT is able to generate coherent, personalized responses based on our queries. Nevertheless, the accuracy of ChatGPT is not as dependable as Google on answers to simple factual questions (such as “When did Argentina win the football World Cup?”) wrong (Southern, 2023). ChatGPT continues to improve and incorporate real-time data, it may eventually render Google obsolete in terms of information retrieval.

Since its launch, ChatGPT has generated significant debate surrounding its benefits for consumers and potential pitfalls. In the following section, we provide a summary of these benefits and pitfalls in the area of consumer studies.

2. POTENTIAL BENEFITS AND PITFALLS

2.1. Benefits

There are several benefits of using ChatGPT for consumers:

2.1.1. Enhanced consumer engagement: ChatGPT-powered chatbots and conversational agents can provide consumers with a more engaging, interactive experience than traditional forms of communication, such as email or phone (Atlas, 2023).

2.1.2. Improved customer service: ChatGPT-powered chatbots can provide customers with instant responses to queries and can help resolve issues more quickly and efficiently than traditional customer service channels (Mattas, 2023).

- 2.1.3. Personalization and shopping: Anthropomorphic chatbots can increase trust, word-of-mouth (WoM), and consumer shopping satisfaction (Konya-Baumbach et al., 2023). ChatGPT cannot shop but can generate fun and surprisingly insightful personalized product recommendations, marketing messages, shopping tips, and reviews based on a consumer's past behaviors and preferences (Truly, 2022).
- 2.1.4. Social interaction: this is important because socializing is associated with better health and lower mortality (e.g., Acosta-González & Marcenaro-Gutiérrez, 2021), and consumers can gain wellbeing benefits via technological channels (Dennis et al., 2016). Some people may find interacting with ChatGPT to be enjoyable and/or helpful in reducing stress or loneliness (See Lemons, 2022).
- 2.1.5. Social interaction and communication practice: ChatGPT can be a useful tool for individuals with autism, Asperger's syndrome, pervasive developmental disorder-not otherwise specified (PDD-NOS), and social communication disorder (SCD). ChatGPT can provide a low-pressure environment to practice communication and gain confidence (Uplifting Voices, 2023).
- 2.1.6. Cost-effectiveness: AI can bring improvements to service quality and productivity (Balakrishnan & Dwivedi, 2021; Huang & Rust, 2018) and can be used to augment human service staff (Vassilakopoulou et al., 2023). ChatGPT-powered chatbots and conversational agents can provide cost-effective customer service and support, as they can handle multiple interactions simultaneously without the need for human intervention (Haluza & Jungwirth, 2023).

2.1.7. Insights into consumer behavior: AI can help generate insights into consumer behavior (Ma & Sun, 2020). ChatGPT can be used to analyze consumer sentiment, preferences, opinions and behavior (Haluza & Jungwirth, 2023).

2.1.8. Improved marketing campaigns: ChatGPT can be used to generate compelling marketing messages that resonate with consumers, leading to higher engagement and conversion rates (Taecharungroj, 2023).

Overall, the use of ChatGPT in consumer studies has the potential to provide numerous benefits, including enhanced customer engagement, improved customer service, personalization and shopping, social interaction and communication practice, cost-effectiveness, insights into consumer behavior, and improved marketing campaigns.

2.2. Pitfalls

While ChatGPT provides numerous benefits for consumers, there are also several potential pitfalls to consider.

2.2.1. Consumer well-being: The more natural and human-like the responses of an AI system or chatbot, the more likely that consumers may become too dependent on it (Baird & Maruping, 2021). Thus, there is a risk that users of ChatGPT may rely too heavily on it for important decisions or interactions (Tech Knowledge, 2023).

2.2.2. Bias: AI and chatbot models are often accused of bias and discrimination (Akter et al., 2021; Haluza & Jungwirth, 2023). ChatGPT can perpetuate biases present in the data it

was trained on, which can result in unfair or discriminatory outcomes (Zhuo et al., 2023). Careful attention must be paid to the data used to train the model, and to the prompts used to ensure that the model's responses are fair and unbiased.

2.2.3. Misinformation: Sometimes, consumers are concerned about the trustworthiness of AI (Floridi, 2019; Ghazwani et al., 2022) when they search for reliable information about some individuals or products. ChatGPT can generate text that is not based on facts, and in some cases, the model may generate false or misleading information (Dallas, 2022). This is particularly a concern when the model is used in applications where accuracy and truthfulness are important, such as in marketing claims and product information.

2.2.4. Lack of context: ChatGPT is a language model that generates responses based on statistical patterns in the data it was trained on. However, it may not always understand the context of the prompts it receives, which can lead to nonsensical or inappropriate responses (ReviewNPrep, 2023). This could result in negative interactions with consumers, potentially damaging brand reputation.

2.2.5. Privacy concerns: In common with other AI models (Belk, 2021), ChatGPT may collect and store data from consumer interactions, which could raise privacy concerns (Eliot, 2023). It is important to consider the implications of data collection and storage, and to ensure that consumer data is protected.

2.2.6. Ethical considerations: The use of AI in certain applications, such as deepfakes or impersonation, may raise ethical concerns (Breidbach & Maglio, 2020). The GPT-3 model that underpins ChatGPT is based on Internet data containing errors and

prejudices that are reflected in the model's answers (Zhang & Li, 2021). Who is accountable for what AI does (Martin 2019)? Using ChatGPT may adversely affect users' moral judgments (Krügel et al., 2023).

2.2.7. Security: ChatGPT can be used to generate convincing, high quality phishing emails, social engineering attacks or other malicious content (Patel & Sattler, 2023). Notwithstanding that ChatGPT has safeguards in place (e.g., it will not return a request for a "phishing email"), these can be overcome by re-phrasing the queries (Karanjai, 2022). Care must be taken to ensure that the model is not used for malicious purposes.

Overall, while ChatGPT can provide valuable insights and enhance consumer engagement, it is important to consider the potential pitfalls and to use the model responsibly and ethically.

3. FUTURE RESEARCH AGENDA

Since millions of consumers have become users of artificial intelligence tools such as ChatGPT, there are several potential avenues for future research in the area of ChatGPT and its implications for consumers. Contexts, theories, research methods, and constructs are suggested in each research area.

3.1. Ethical considerations: Research could explore the ethical implications of using ChatGPT in advertising, market research, or customer service. This could include investigations into issues such as privacy, data security, consent, bias, and accountability. As ChatGPT becomes more widely adopted in marketing, there are concerns about how it may be used to manipulate customers, and hence, researchers should examine how to ensure that ChatGPT is used responsibly by marketers.

3.1.1. Contexts

The context of this area of research would involve exploring the ethical implications of using ChatGPT in advertising, market research, social media, and other contexts. ChatGPT-generated responses could be used to create personalized and engaging ads, gather insights on consumer behavior through market research, and generate social media content that is more relevant to consumers. However, there are potential ethical concerns related to data privacy, informed consent, transparency, authenticity, and the potential for ChatGPT to be used to manipulate customers. For example, the use of ChatGPT in customer service, online education, mental health counseling, and other applications where human-like interactions are desired could raise concerns about the impact on individuals' well-being and the potential for harm. Therefore, research in this area could explore the ethical implications of using ChatGPT in different contexts and provide recommendations for responsible use.

3.1.2. Theories

This area of research could draw on various theories related to ethics, consumer behavior, and emerging technologies to investigate the ethical implications of using ChatGPT. Theories such as contract, utilitarianism, deontology, and virtue ethics (Xie, 2021) can be used to evaluate the moral implications of ChatGPT in marketing. The concept of digital ethics (Hanna & Kazim, 2021) can provide a framework for understanding the ethical implications of emerging technologies like ChatGPT. Theories of consumer psychology and behavior such as the Theory of Planned Behavior (TPB) (Mariani et al., 2022) and the Theory of Reasoned Action (TRA) (Mehta et al., 2022) can help to understand how ChatGPT may be used to manipulate customers, and how to ensure that it is used responsibly. The principle of beneficence (Cowls et al., 2021) can be used to explore whether the use of ChatGPT promotes the well-being of consumers, while the principle of non-maleficence (Jobin et al., 2019) can be used to investigate whether the use of ChatGPT avoids harm to consumers. Theories such as privacy (Bandara et al., 2020),

fairness (Jiang L. et al., 2022), and accountability (Miller, 2022) can also be applied to investigate specific ethical concerns related to ChatGPT.

3.1.3. Methods

Potential research methods in this area are *ethical and legal analyses* of usage of specific cases of ChatGPT in marketing and consumer contexts, using frameworks such as Privacy Impact Assessment (PIA) or Ethical Impact Assessment (EIA) to identify potential ethical risks and trade-offs and strategies for mitigating these risks. Synthesis based on three or four *case studies* of specific companies or industries using ChatGPT in their marketing and advertising can provide an in-depth exploration of the ethical implications of these applications. These case studies could involve *Interviews* with key stakeholders, analysis of company policies, practices and other data sources can provide a comprehensive understanding of the ethical implications of ChatGPT in specific contexts. Additionally, *interviews* or *focus groups* with consumers, industry experts, and practitioners can gain insights into their experiences, perceptions, concerns, and the ethical implications of using ChatGPT in consumer contexts. Surveys can collect quantitative data on consumer perceptions and attitudes towards the use of ChatGPT in advertising, market research, or customer service and assess specific constructs related to ethical implications, such as trust, transparency, and accountability.

3.1.4. Constructs

The constructs that could be explored in this area pertain to the ethical implications of using ChatGPT for wellbeing purposes, particularly regarding data privacy, consent, and consumer protection. This includes analyzing user privacy and data security issues, as well as assessing the potential impact on vulnerable populations. Bias in training data and model outputs, transparency and accountability of organizations, and explainability of the model also need to be examined. In addition, privacy and data protection laws, ethical principles like autonomy and non-maleficence, and trust, transparency, and accountability in AI and machine learning

must be considered. Finally, it is important to investigate legal frameworks for consumer protection from deceptive marketing practices, consumer attitudes towards ChatGPT in marketing, and industry practices and standards for using ChatGPT in marketing.

3.2. Developing strategies for mitigating bias in ChatGPT-generated

responses: Given the potential for bias in ChatGPT-generated responses, research could explore strategies for mitigating this bias, such as by adjusting the training data or fine-tuning the model on specific domains or datasets. The research could also investigate the impact of bias in ChatGPT-generated responses on user perceptions and experiences in customer service interactions including chatbots and other consumer-facing applications such as virtual assistants.

3.2.1. Contexts

The context of this research would involve exploring user attitudes towards biased responses and developing strategies for addressing these biases to improve user trust and satisfaction.

3.2.2. Theories

The research could draw on various theories related to bias in artificial intelligence and natural language processing, including critical race (Poole et al., 2021), intersectionality (Ciston, 2019) and feminist (Wellner & Rothman, 2020) theories. Additionally, theories related to ethics and responsibility in artificial intelligence could be relevant, such as the principle of beneficence (Covles et al., 2021) and the precautionary principle (Castro & McLaughlin, 2019).

3.2.3. Methods

Research in this area could use a combination of qualitative and quantitative methods. Qualitative methods could include *interviews* or *focus groups* with stakeholders, including developers, users, and experts in the field of natural language processing. Quantitative methods

could include *data analysis of the model's performance* on various datasets, as well as *statistical analysis of user feedback*.

3.2.4. Constructs

The constructs that could be explored in this area include the types of biases that can be present in ChatGPT-generated responses, such as gender bias, racial bias, and cultural bias. Additionally, constructs related to mitigating bias, such as fine-tuning the model on specific datasets, adjusting the training data, or using post-processing techniques to remove biased language, could be explored.

3.3. Consumer Well-being and ChatGPT: Research on the well-being implications of ChatGPT should consider the potential benefits and risks for users, as well as ethical considerations (as above), and strive to develop strategies for mitigating potential harms and promoting positive outcomes.

3.3.1. Contexts

The research could be conducted in various contexts, including investigating ChatGPT's potential to become an addiction and the impact of excessive reliance on users' well-being. It could also explore ChatGPT's potential as a shopping assistant and the benefits of reducing consumer loneliness. Additionally, the ethical implications of using ChatGPT in mental health and wellness applications could be examined to assess the potential risks and benefits of using ChatGPT to provide therapy or counselling services.

3.3.2. Theories

Several theories could inform research on consumer well-being. The theory of self-medication (Yang et al., 2021) could be applied to understand users' motivations for using ChatGPT and the potential risks of addiction. Theories of social support (Lin & Lee, 2023) and social influence (Aw et al., 2022) could be used to examine how ChatGPT can impact users' social

interactions and well-being. The role of self-disclosure (Kim et al., 2022) and privacy (Bandara et al., 2022) in the use of ChatGPT for mental health and wellness applications could be explored. Self-Determination Theory (SDT) (Gilal et.al, 2019; Nguyen et al., 2022; Ryan & Deci, 2000; 2017) could be used to investigate how ChatGPT affects users' sense of autonomy, competence, and relatedness in decision-making. Social Identity Theory (Edwards et al., 2019) could be used to explore how the use of ChatGPT affects users' sense of identity and belonging in social interactions.

3.3.3. Methods

The following research methods could be used in this area: Conducting *longitudinal studies* to understand the long-term effects of using ChatGPT on users' mental health and well-being. *Experimental studies* can be conducted to measure the effects of different levels of exposure to ChatGPT on users' decision-making and well-being. *In-depth interviews* and *focus groups* can be used to explore users' experiences and behaviors related to their use of ChatGPT including their perceptions of its effectiveness, and impact on their mental health and well-being. *Surveys* can be used to collect data on users' perceptions of their dependence on ChatGPT and its impact on their well-being.

3.3.4. Constructs

Some of the key constructs that could be examined in research on well-being related to ChatGPT include user dependence, social interaction, enjoyment and stress reduction, and communication practice and confidence. User dependence on ChatGPT can be measured through users' reliance on ChatGPT or the frequency of ChatGPT use for certain types of interactions. Social interaction and well-being can refer to the relationship between social interaction, including interactions with ChatGPT, and various dimensions of well-being such as happiness, loneliness, and satisfaction with life. Enjoyment and stress reduction refer to the extent to which users find interacting with ChatGPT to be enjoyable or helpful in reducing

stress. They can be measured through self-report measures such as Likert scales, or through behavioral measures such as the frequency of ChatGPT use during times of stress. Communication practice and confidence refer to the extent to which ChatGPT provides a low-pressure environment for individuals with communication difficulties to practice and gain confidence. They can be assessed through users' experiences with ChatGPT or the frequency and length of ChatGPT interactions. Measures of dependence on ChatGPT can include frequency of use, time spent using ChatGPT, and users' perceived ability to make decisions without ChatGPT. Measures of decision-making can include users' confidence in their decisions, the quality of decisions made with ChatGPT, and the impact of ChatGPT on the outcomes of decisions.

3.4. Exploring consumer perceptions of ChatGPT-generated responses: As the use of ChatGPT becomes more prevalent in consumer-facing applications, it is important to understand how consumers perceive the use of the model in these contexts. Research could investigate consumer attitudes towards the use of ChatGPT-generated responses in chatbots, customer service interactions, and other applications.

3.4.1. Contexts

Research could be conducted in various contexts where ChatGPT is being used in consumer-facing applications, such as chatbots, customer service interactions, and other applications such as virtual assistants.

3.4.2. Theories

Theoretical frameworks that could inform this research include TRA (Mehta et al., 2022), Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Gansser & Reich, 2021; Venkatesh et al., 2012) and social cognitive theory (Balakrishnan et al., 2022). These frameworks offer valuable insights into the factors that influence consumers' attitudes and

behaviors towards technology adoption. By using these frameworks, researchers can develop a more comprehensive understanding of how consumers perceive and interact with ChatGPT-generated responses in various applications, such as chatbots and customer service interactions.

3.4.3. Methods

Potential research methods in this area are experimental studies, social and cultural analysis, surveys and interviews. Experimental studies could test how consumers respond to ChatGPT-generated responses compared to human-generated responses in various contexts. Social and cultural analysis could explore how the use of ChatGPT fits into broader social and cultural contexts, using media analysis to study how ChatGPT is represented in public media, discourse analysis to analyze language used by consumers and stakeholders, and ethnographic analysis to observe people's interactions with ChatGPT in different contexts. *Surveys* and *interviews* could gather consumer perceptions and attitudes towards the use of ChatGPT, including questions about trust, satisfaction, perceived effectiveness, and concerns about privacy and data security.

3.4.4. Constructs

Constructs that could be measured in this research include consumer trust, beliefs, attitudes, subjective norms, self-efficacy, performance expectancy, effort expectancy and social influence, towards technology, and behavioral intentions towards using ChatGPT-generated responses.

3.5. User experience: Researchers could investigate how users interact with ChatGPT, and how the system can be optimized to provide the best user experience.

3.5.1. Contexts

The context of this research would involve exploring user experience with ChatGPT in various contexts such as customer service, e-commerce, personal shopping, social interaction, and

communication practice. The research would also compare user experience with ChatGPT to other communication channels such as face to face, phone calls, emails, and social media.

3.5.2. Theories

The research could be guided by user-centered design principles (Bernardo et al., 2018) to ensure ChatGPT is designed with the user's needs and preferences in mind. Theories of human-computer interaction (e.g. Nicolescu & Tudorache, 2022) can guide the design of effective user interfaces. Theories of communication (e.g. Guzman & Lewis, 2020) and persuasion (Dehnert & Mongeau, 2022) can help understand how ChatGPT can be used to communicate effectively with users. Additionally, UTAUT2 (Gansser & Reich, 2021) can be used to examine the factors that influence users' adoption and use of ChatGPT.

3.5.3. Methods

Research in this area could use a combination of methods to assess the effectiveness of ChatGPT in various applications. *Eye-tracking* and other *physiological measures* could be used to assess user attention and engagement, while *A/B testing* could be used to compare the effectiveness of different versions of ChatGPT. In addition, *user testing* and *surveys* could be conducted to gather qualitative and quantitative data on user experience. By combining these different research methods, researchers could gain a comprehensive understanding of how users interact with ChatGPT and how the technology can be improved to better meet users' needs.

3.5.4. Constructs

Constructs that could be measured in this research include usability and ease of use of ChatGPT, user engagement and satisfaction with ChatGPT, user trust in ChatGPT and its recommendations, user perceptions of the personalization and customization of ChatGPT.

3.6. The impact of ChatGPT on Customer Experience and Engagement:

Researchers can examine how ChatGPT can be used to improve the customer experience in marketing such as by providing personalized recommendations and customer support.

3.6.1. Contexts

Research in this area could focus on contexts such as marketing, exploring how ChatGPT can improve customer experience and engagement, for example, advertising, sales and marketing campaigns. Customer service is another area worth investigating, particularly the use of ChatGPT in providing personalized recommendations and support to customers.

3.6.2. Theories

Research could draw on various theories related to customer experience, social influence, and cognitive load. Customer experience theory (Gao et al., 2022) examines the factors that influence customer satisfaction, loyalty, and retention, such as customer expectations, emotions, and perceptions of quality. Social influence theory (Aw et al., 2022) explores how people's attitudes and behaviors are shaped by social influence, such as recommendations from friends or influencers. Cognitive load theory (Hollender et al., 2010) examines how the amount of mental effort required to process information affects learning and decision-making.

3.6.3. Methods

Research in this area could use several methods to explore the impact of ChatGPT on customer engagement and satisfaction in marketing and customer service contexts. *A/B testing* can be used to compare customer engagement and satisfaction with and without the use of ChatGPT. *Behavioral experiments* can help examine the impact of ChatGPT on customer behavior, such as purchase decisions or brand loyalty. *Interviews* with customers, marketing professionals, and customer service representatives can provide qualitative data on the impact of ChatGPT on customer experience and engagement. *Surveys* can also be used to gather customer feedback

on their experience with ChatGPT in marketing or customer service. Overall, these methods can provide valuable insights into the design and implementation of ChatGPT in these contexts.

3.6.4. Constructs

Constructs that could be examined include the degree of personalization in ChatGPT responses, perceived trustworthiness, customer engagement, and satisfaction. Personalization can be assessed based on how much the responses are tailored to individual customers' preferences, interests, and behaviors. Perceived trustworthiness can be measured by customers' opinions on the reliability, competence, and honesty of ChatGPT-generated recommendations and support. Engagement can be measured by the frequency and duration of interactions and the types of activities customers engage in. Satisfaction can be evaluated based on how well customers' needs were met and how enjoyable the interactions were.

3.7. The impact of ChatGPT-generated responses on consumer behavior:

Researchers could examine the extent to which ChatGPT-generated responses influence consumer behavior, such as purchase decisions, product evaluations, or brand perceptions.

3.7.1. Contexts

The research could be conducted in various contexts such as e-commerce websites, social media platforms, customer service interactions, or chatbot applications.

3.7.2. Theories

The research could be grounded by Theory of Planned Behavior (TPB) (Mariani et al., 2022) or UTAUT2 (Gansser & Reich, 2021), theories of persuasion (Dehnert & Mongeau, 2022), social influence (Aw et al., 2022), masstige (Paul, 2018; 2019), other consumer decision-making theories (Tian et al., 2016), and brand perception (Kliestik et al., 2022). These theories could help to identify the factors that influence consumer behaviour and how ChatGPT-generated responses may impact these factors.

3.7.3. Methods

Potential research methods in this area are experiments, *field studies*, *case studies*, and *surveys*. One option is to conduct experiments comparing the impact of ChatGPT-generated responses and human-generated responses on consumer behavior, such as purchase decisions or brand perceptions. *Field studies* could involve observing consumer interactions with ChatGPT-generated responses, measuring their impact on behavior (e.g., purchase decisions), and exploring contextual factors that may influence the impact. Research based on *case studies* could examine companies that have implemented ChatGPT-generated responses in consumer applications, assessing the impact on consumer behavior and any implementation challenges or opportunities. Finally, *surveys* could gather data on consumer attitudes towards ChatGPT-generated responses and their impact on behavior by asking questions about frequency of interactions with ChatGPT, perceived accuracy and helpfulness of the response, and the influence of the responses on consumer behavior. There are opportunities for qualitative studies too.

3.7.4. Constructs

Constructs that could be examined include trust, perceived usefulness, and perceived ease of use in relation to ChatGPT-generated responses, attitudes towards ChatGPT-generated responses, perceived trustworthiness and credibility of the responses, purchase intentions, product evaluations, and brand perceptions.

3.8. Developing new applications for ChatGPT: Researchers could explore new applications for ChatGPT in consumer contexts, such as in personal shopping assistants, personalized marketing, or consumer sentiment analysis. These applications could help to improve the consumer experience and provide new insights into consumer behavior.

3.8.1. Contexts

The context of this research would involve exploring various applications of ChatGPT in the business domain, including personal shopping assistants where ChatGPT can be used to provide personalized recommendations and assist consumers in their shopping journey. Additionally, personalized marketing can be achieved using ChatGPT by generating tailored marketing messages based on individual consumer preferences and behavior. Another potential application of ChatGPT is consumer sentiment analysis, where it can be used to analyze consumer feedback and sentiment, enabling companies to improve their products and services accordingly.

3.8.2. Theories

The research could draw on various theories related to the potential acceptance and impact of ChatGPT on users and consumer behavior. UTAUT2 (Balakrishnan et al., 2022; Venkatesh et al., 2012) could identify factors influencing ChatGPT's adoption and usage. Persuasion theories, such as the elaboration likelihood model (Chen et al., 2021) or social influence theory (Aw et al., 2022), could reveal how ChatGPT-generated responses influence consumer behavior. Consumer behavior theories, such as TPB (Mariani et al., 2022) or the behavioral economics model (Arnott & Gao, 2019), could be used to understand how ChatGPT-based applications affect consumer decision-making and behavior.

3.8.3. Methods

The research in this area could use *A/B testing* to measure the effectiveness of ChatGPT-generated responses on consumer behavior and decision-making. *Interviews* and *focus groups* could be conducted to gain in-depth insights into consumer experiences and behaviors with ChatGPT. Additionally, *surveys* could be utilized to collect data on consumer attitudes and perceptions towards ChatGPT in various applications.

3.8.4. Constructs

Some of the key constructs that could be examined in research on ChatGPT-based applications are related to user experience, personalization, and consumer attitudes and beliefs. Constructs related to user experience includes satisfaction, ease of use, and trust. Similarly, constructs related to personalization can be measured through perceived personalization or perceived relevance. In addition, constructs related to consumer attitudes and beliefs, such as perceived privacy risks or perceived ethical implications, could be explored. Finally, constructs related to user adoption and usage, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit could be included.

3.9. The potential for ChatGPT to enhance marketing research: Researchers could investigate how ChatGPT can be used to analyze customer feedback and social media data to gain insights into consumer behavior and preferences.

3.9.1. Contexts

Research in this area could explore various contexts, such as analyzing customer feedback and reviews to gain insights into consumer behavior and preferences, utilizing ChatGPT to analyze social media data for understanding consumer sentiment and behavior, and developing ChatGPT-powered tools for market research and consumer insights.

3.9.2. Theories

The research could draw on various theories related to ChatGPT and consumer behavior. The use of ChatGPT in analyzing social media data and identifying patterns in consumer behavior based on group identity is a potential application of Social Identity Theory (Edwards et al., 2019). Diffusion of Innovations Theory (Borghetti & Mariani, 2022) describes how new technologies or ideas spread through a population, and could be applied to the adoption and use of ChatGPT in marketing research. Communication Accommodation Theory (van Pinxteren et al., 2023) suggests that individuals adjust their communication style to match that

of the person they are communicating with, which could be relevant to research on how ChatGPT-generated responses affect consumer behavior and attitudes. Attribution Theory (Mozafari et al., 2022) proposes that individuals tend to attribute causes to events based on certain criteria, such as consistency, distinctiveness, and consensus. ChatGPT-generated responses could potentially influence how consumers attribute causes to events and how they perceive certain brands or products. Finally, SDT (Gilal et.al, 2019; Nguyen et al., 2022; Ryan & Deci, 2000; 2017) could be used to explore how ChatGPT-generated responses impact motivators and influence consumer behavior.

3.9.3. Methods

The following research methods could be used to investigate the impact of ChatGPT in market research: *Data mining and analysis* of customer feedback and reviews from multiple online platforms gain insights into consumer perceptions and opinions about ChatGPT. ChatGPT's *natural language processing techniques* can analyze social media data and customer feedback to identify emerging trends and patterns. *Experimental design* evaluates the effectiveness of ChatGPT-powered market research tools in improving the accuracy and efficiency of data collection and analysis.

3.9.4. Constructs

The constructs that could be explored in this research include the following. Consumer feedback could include the sentiment, tone, and topics discussed in customer reviews, survey responses, and social media posts. Consumer behavior could include purchase patterns, browsing history, and other online activities that indicate consumer preferences and interests. Consumer preferences could include factors such as product features, design, price, and brand identity. Marketing effectiveness could include measures of brand awareness, customer loyalty, and sales growth.

3.10. Personalization: Researchers could explore how ChatGPT can be used to provide personalized recommendations and improve the customer experience.

3.10.1. Contexts

The context of this research would involve exploring how ChatGPT can be used to personalize various aspects of customer experience in e-commerce, social media marketing, and customer service. This includes personalization of product recommendations, upselling and cross-selling strategies, personalization of ad targeting, personalized content delivery, and personalized responses to customer queries, as well as providing personalized product support and recommendations.

3.10.2. Theories

The research could be guided by several theories, including Personalization theory (Fan & Poole, 2006), which explores the impact of personalized content on user engagement, satisfaction, and brand loyalty. Additionally, UTAUT2 (Gansser & Reich, 2021) can be utilized to examine the adoption and use of personalized ChatGPT. Furthermore, SDT (Gilal et.al, 2019; Nguyen et al., 2022; Ryan & Deci, 2000; 2017) can be used to explore how ChatGPT can enhance users' sense of autonomy, competence, and relatedness.

3.10.3. Methods

Potential research methods in this area are *analyzing user data and behavior* to identify patterns and preferences, running *A/B tests* to compare the effectiveness of personalized vs. non-personalized content, using *machine learning* algorithms to develop personalized recommendations and content delivery, and conducting *surveys* and *focus groups* to understand customer preferences and expectations for personalization.

3.10.4. Constructs

The constructs that could be explored in this area include: personalization, which refers to the level of customization of the ChatGPT-generated responses based on user preferences, history,

and behavior; user engagement, which refers to the level of user involvement and interaction with the ChatGPT system; user satisfaction, which refers to the degree to which users are satisfied with the ChatGPT-generated responses and the overall user experience; and brand loyalty, which refers to the tendency of customers to repeatedly purchase products or services from a particular brand or company.

3.11. Comparative Analysis: Researchers could compare ChatGPT to other forms of customer service or recommendation systems, and evaluate the relative strengths and weaknesses of each.

3.11.1. Contexts

The comparative analysis of ChatGPT with other customer service or recommendation systems could be studied in various contexts, such as e-commerce, online marketplaces, social media platforms, customer service departments, and digital marketing. In e-commerce, ChatGPT can provide personalized recommendations based on browsing and purchase history, and researchers can compare its effectiveness with other recommendation systems in terms of accuracy, efficiency, and user satisfaction. Online marketplaces can use ChatGPT to assist customers in finding products and services, and researchers can compare its effectiveness with other customer service channels such as email or phone support in terms of response time, accuracy, and user satisfaction. Similarly, in social media platforms, ChatGPT can provide personalized recommendations or support to users, and researchers can compare its effectiveness with other forms of social media engagement such as commenting or sharing. In customer service departments, ChatGPT can automate routine inquiries, and researchers can compare its effectiveness with traditional customer service channels such as phone or email support. Finally, ChatGPT can be used in digital marketing campaigns to provide personalized recommendations, and researchers can compare its effectiveness with other forms of digital

marketing such as email or social media ads in terms of engagement, conversion rates, and user satisfaction.

3.11.2. Theories

Theoretical frameworks that could inform this research include UTAUT2 (Gansser & Reich, 2021), as mentioned earlier. Additionally, Social Influence Theory (Aw et al., 2022) could explore how social factors such as peer pressure and conformity influence individual behavior and decision-making. Information Processing Theory (Chen et al., 2022) could also be considered as a framework to examine how individuals process and interpret information and how this affects their behavior and decision-making.

3.11.3. Methods

To compare ChatGPT with other recommendation systems or customer service platforms, researchers can employ various methods, such as *user testing*, *case studies*, and *user surveys*. *User testing* involves observing how users interact with different recommendation systems, including ChatGPT and identifying the ease of use, efficiency, and satisfaction level of users with each system. *Case studies* can be conducted to evaluate performance of ChatGPT and other recommendation system in different contexts and identify advantages and disadvantages of each system. Researchers can also conduct *user surveys* to collect user feedback and preferences for different recommendation systems, including ChatGPT, and compare results to identify strengths and weaknesses of each system.

3.11.4. Constructs

Some of the key constructs that could be examined in research on ChatGPT and other customer service or recommendation systems are as follows. Effectiveness could be used to evaluate how well these systems meet the needs of users and provide helpful recommendations or solutions. Efficiency could be used to assess how quickly and easily users are able to find the information or assistance they need using ChatGPT and other systems. User satisfaction could

be used to gauge users' overall satisfaction with ChatGPT and other systems and their likelihood to use them again in the future. Trust could be used to investigate users' levels of trust in the systems and how this affects their likelihood to follow recommendations or use the system for customer service.

3.12. The effectiveness of ChatGPT compared to other marketing communication channels: Research could compare the effectiveness of ChatGPT to other communication channels, such as email, social media, and phone calls, to determine which is most effective for different types of marketing messages and campaigns.

3.12.1. Contexts

The effectiveness of ChatGPT compared to other marketing communication channels can be studied in various contexts such as e-commerce, retail, hospitality, healthcare, and finance, among others. The research can be conducted using real-world data from different industries and organizations.

3.12.2. Theories

Several theories could inform research on the effectiveness of ChatGPT compared to other marketing communication channels, including UTAUT2 (Gansser and Reich, 2021) as explained earlier, Communication Accommodation Theory (van Pinxteren et al., 2023) helping researchers understand how communication channels affect consumer perceptions of a brand or organization, and Social Exchange Theory (Jiang H et al., 2022) exploring the costs and benefits of different communication channels from the perspective of both consumers and organizations.

3.12.3. Methods

To compare the effectiveness of ChatGPT with other marketing communication channels, researchers can use a variety of methods, such as *surveys*, *experiments*, and *case studies*.

Experiments can compare the performance of different communication channels based on metrics such as response rates, conversion rates, and customer satisfaction. *Case studies* can offer real-world examples of how various communication channels have been used in marketing campaigns. *Surveys* can collect data on consumer perceptions and preferences regarding different communication channels.

3.12.4. Constructs

Some of the key constructs that could be examined in research on the effectiveness of ChatGPT compared to other marketing communication channels include consumer preferences, satisfaction, trust, and engagement. Other constructs could include metrics such as response rates, conversion rates, and sales. The impact of different communication channels on brand awareness, customer loyalty, and long-term customer value could also be explored.

4. Conclusion

Digital transformation through Internet of things, metaverse and AI tools such as ChatGPT has the potential to revolutionise the field of consumer research. Despite many benefits, there are also many pitfalls along the way. The future research agenda is substantial and the numerous theories, models and frameworks could be used in this area of studies by marketing scientists, statisticians, psychologists, economists, sociologists and natural science researchers. Researchers could examine the antecedents or purchase decisions of consumers and outcomes of use of ChatGPT among different segments of consumers such as young consumers, women, men, self-employed people, seniors etc. In addition, opportunities exist to extend the research along the lines of Shin et.al (2022) and Modinski et.al (2023). We wish success to fellow researchers in operationalizing our many calls to action!

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