
The Influence of Search Engines and Generative AI on Trust, Satisfaction, and Purchase Intention: An Experimental Study

Heidi Maulani¹, Widyarso Roswinanto^{2*}

PPM College of Management, Jakarta^{1,2}

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Abstract

This study examines the effects of digital information search media (search engines versus generative AI) and product type (goods versus services) on consumer responses. Using a 2×2 factorial experimental design and ANCOVA analysis, data were collected from 146 respondents aged 20–40 years. The variables measured include trust, satisfaction, and purchase intention. The results show that media type has no significant effect on dependent variables, while product type significantly influences trust and satisfaction but not purchase intention. A significant interaction effect between media type and product type is found for trust and satisfaction, indicating that generative AI is preferred for goods, whereas both media perform similarly for services.

Keywords: search engine, generative ai, trust, satisfaction, experiment, ANCOVA.

Abstrak

Penelitian ini mengkaji pengaruh media pencarian informasi digital (mesin pencari vs kecerdasan buatan generatif) dan jenis produk (barang vs jasa) terhadap respons konsumen. Menggunakan desain eksperimen faktorial 2×2 dan analisis ANCOVA, penelitian ini melibatkan 146 responden berusia 20–40 tahun. Variabel yang diukur meliputi kepercayaan, kepuasan, dan niat beli. Hasil menunjukkan bahwa jenis media tidak berpengaruh signifikan terhadap seluruh variabel dependen, sedangkan jenis produk berpengaruh signifikan terhadap kepercayaan dan kepuasan, tetapi tidak terhadap niat beli. Efek interaksi antara media dan jenis produk signifikan terhadap kepercayaan dan kepuasan, namun tidak terhadap niat beli. Temuan ini menunjukkan bahwa kecerdasan buatan generatif lebih disukai untuk pencarian produk barang, sementara untuk produk jasa kedua media menunjukkan kinerja yang relatif setara.

Kata kunci: mesin pencari, ai generatif, kepercayaan, kepuasan, eksperimen, ANCOVA.

*) Corresponding Author

Email: wid@ppm-manajemen.ac.id (Widyarso Roswinanto)

INTRODUCTION

The Internet and information technology have been rapidly growing for a decade, significantly influencing and shaping consumer behavior, particularly at the information search stage of the decision-making process. Indonesia ranks fifth globally in internet usage, with Google being the most visited website, reflecting the dominance of search engines in online behavior. In the classic consumer decision-making process, according to Kotler and Keller (2021), the information search stage is a crucial step for consumers to reduce risk and uncertainty before making a purchase.

Search engines like Google and Bing have become the leading online destination for consumers to search for information. A study conducted by PWC (2023) found that 54% of respondents prefer search engines as their primary source for digital information before making a purchase. Kabir (2019) also mentioned that search engines are not only used for information search but also for helping consumers recognize their needs and evaluate alternatives. As noted, the quality of information provided will also influence consumer perception of their decision making (Lemon & Verhoef, 2016)

However, the popularity of search engines as the dominant media for information searching has recently been challenged by the emergence of generative AI, marked by the launch of ChatGPT in 2022. As a large language model (LLM), ChatGPT offers clearer and more interactive responses than traditional search engines, which typically present only a list of website links (Liu et al., 2024). According to American research institute Gartner (2025) predicts that by 2026, search engine usage will decrease by 25% as AI chatbots and virtual agents become more prominent. Their research revealed that 40% of Gen Z consumers now prefer ChatGPT due to its efficiency and transparency, compared to search engines that may contain paid content and SEO strategies. This is expected as Gen Z considered superior in terms of technology use compared to other generations (Claudio and Wardani, 2024)

This prediction might be happened by supporting previous studies, such as those by Jin and Han (2025), in which respondents reported finding satisfaction in using ChatGPT for planning holidays and experiencing excitement from person-like interactions. Another study, conducted by Yin et al. (2025), found that AI-driven personalized recommendations significantly increased consumer click-through and purchase intentions.

Consumer behavior in information search is not only shaped by the channel but also by the type of product being searched. As seen in Figure 1, EMarketer (2024) mentioned that consumers prefer different channels depending on product category. For example, 36% of consumers searching for electronics preferred online sources, while 40% of clothing shoppers primarily used online channels but occasionally visited physical stores. These findings suggest that consumer information-seeking patterns vary based on product type. Basu (2018) also found that search goods and experience goods exhibit different online search behaviors. Consumers searching for experience goods—such as hotels

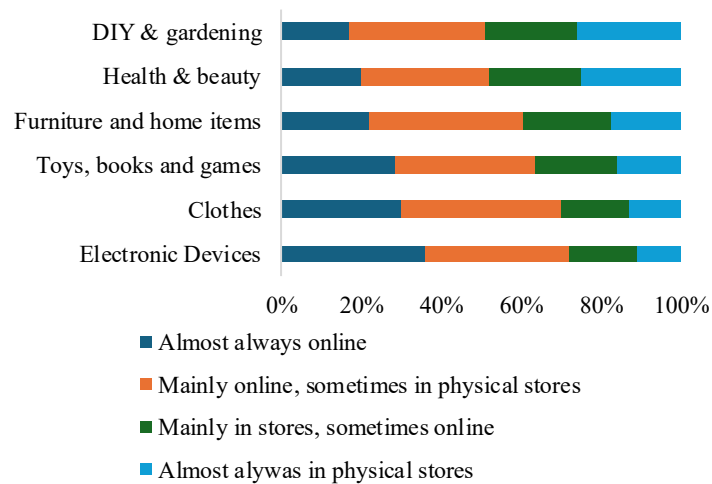


Figure 1. Information Search According to Product Types

Source: emarketer.com (2024)

or restaurants—tend to seek more detailed and in-depth information compared to those searching for search goods, such as clothing or food. This result indicates different information seeking behavior according to different product types. Consumer behavior in information search is not only shaped by the channel but also by the type of product being searched. As seen in Figure 1, EMarketer (2024) mentioned that consumers prefer different channels depending on product category. For example, 36% of consumers searching for electronics preferred online sources, while 40% of clothing shoppers primarily used online channels but occasionally visited physical stores. These findings suggest that consumer information-seeking patterns vary based on product type. Basu (2018) also found that search goods and experience goods exhibit different online search behaviors. Consumers searching for experience goods—such as hotels or restaurants—tend to seek more detailed and in-depth information compared to those searching for search goods, such as clothing or food.

Given these shifts—from the dominance of search engines to the growing role of generative AI—and differences in consumer information behavior based on product types, this study aims to explore how information search media and product types influence consumer perceptions of trust and satisfaction, as well as purchase intention, using the Stimulus-Organism-Response (S-O-R) framework and brand response scales.

THEORETICAL FRAMEWORK

Search Engine

A search engine is part of internet search, which is included in online information sources (Haridasan et al., 2021). Jepsen (2007) revealed in his study that the internet is primarily used for

information search before purchase, which is commonly done through a search engine (Mothersbaugh & Hawkins, 2024). A search engine is a part of an information retrieval system that is able to look for documents according to the keywords given and retrieve a list of documents related to those keywords.

According to a survey from the Pew Research Centre (2012), 91% of online US adults use a search engine to look for information from websites, and Google.com is the most common search engine used, according to 83% of respondents. These results are attributed to the quality of the information provided and its unbiased nature, despite some respondents indicating that the quality and relevance of the information are declining. Cited from Digital Marketing For Asia (2025) in regards to the most popular search engine across APAC in 2025, Google has remarked as the most popular search engine in Indonesia with 93.15% market share compared to other popular search engine.

Generative AI

Generative AI is a technology innovation that combines machine learning, natural language processing, image processing, and computer vision to automatically generate new content based on data input (Lim et al., 2023; Lv, 2023). According to OpenAI (2025), ChatGPT is developed using three sources of innovation: information available publicly on the internet, information from third-party partners, and information from users, human trainers, and researchers. It can be implied that Generative AI can function as a tool to look and gather information the way a search engine does because Chat GPT can recommend users about products or services they might need, according to context and prompts given to the system (Chang & Park, 2024).

Product Types

According to Kotler and Armstrong (2016), a product is anything that is offered to the market for attention, acquisition, use, or consumption to fulfill needs or wants, and not limited to goods; products can include services, experiences, events, persons, ideas, organizations, or information—in marketing also known as goods and services which cannot be distinguish explicitly. Goods can be nouns and services a verb; goods, if purchased, include asset acquisition, while services are an expense (Rathmell, 1966). Goods can be classified into non-durable goods, durable goods, and services (Hannagan, 1992).

Trust

Trust is a human instinct that reduces complexity in decision-making (Luhmann, 1979). Trust in hierarchy plays a role in perceived value due to its cognitive and affective nature, which shapes

consumer acceptance of the value created (Chai et al., 2015). (Petcharat and Leelasantitham, 2021) revealed that trust can influence information search and evaluating alternatives and correlate positively with purchase intention, repurchase, and even give a reference from their purchase as part of post-purchase behavior. Trust was an essential metric to measure technology adoption. In study conducted by Adinda and Amalia (2022) trust was measure to observe consumer's willingness in using digital platform to do zakat, similar with another study by Ameen et al. (2021), which aimed to measure consumer experience in using AI-enabled systems, trust in the technology used, the process, and the brand has been identified as an essential factor in creating a positive consumer experience.

Satisfaction

According to Giese and Cote (2002), consumer satisfaction is typically conceptualized as an emotional or cognitive response. However, satisfaction is not limited to the word "satisfy" but inclines towards an affective response that can be categorized or listed based on its strength. For example, satisfaction can be defined as neutral, not influenced, not helped, like, or very satisfied. Satisfaction can serve as an evaluation of product standards, consumption or use experiences, and related seller attributes, such as the seller itself and the absence of time limits. A study conducted by Jin and Han (2025b) found that consumers can feel satisfaction with the information they retrieved during the search process. These are signs that satisfaction can be an output as a response to the activity conducted.

Purchase Intention

Purchase intention refers to a consumer's intention to plan or desire to purchase a product or service in the future (Shah et al., 2012). It can be influenced by various factors, such as quality, price, lifestyle, and social environment (Huang et al., 2011). In an online shopping environment, purchase intention is defined as a consumer's willingness to purchase a product through online channels (Pavlou, 2003). Sohn and Kim (2020) suggest that economic factors, needs, trust level, and sales promotion can also influence purchase intention. According to study conducted by Andriani and Ariyani (2024), purchase intention can also be influenced by recommendations from digital influencers found in social media. In contrast to the online shopping environment or e-commerce, risk factors, benefits, trust, and brand image are the main factors influencing online purchase intention (Komalasari et al., 2021).

Mudjahidin et al. (2022) revealed that the interaction between the implementation of search engine marketing on Google on an online platform has a significant correlation with purchase intention. Research conducted by Yin et al. (2025) implies that personalized AI recommendations can significantly influence consumers' clicking intentions. These studies imply that external factors, such

as adoption of technology, can also increase consumer purchase intention.

RESEARCH FRAMEWORK

Based on a previous study conducted by Kim and Priluck (2025), the study reveals that consumers have different responses toward search engines and generative AI, influenced by consumer psychological factors, especially familiarity. Mogaji and Jain (2024) noted that the generative AI phenomenon has the potential to play a significant role in consumer behavior. Zhou and Li (2024) also mention that consumers are shifting from search engines towards Generative AI, highlighting their satisfaction. Petcharat and Leelasanthitam (2021) also suggest that the technologies applied will affect consumer responses differently.

For product type implications, a study conducted by Melero and Montaner (2016) reveals that product types of influence brand attitude and purchase intention. At the same time, Huang et al. (2009) show that two different product categories have different search behaviors and information classification. According to Wachowicz (2021), credibility factors are among the primary influences on purchase intention. Mishra et al. (2020) illustrate that the interaction between technology used, and product types has a significant impact on consumer response.

For example, the interaction between AR/VR and hedonic products is more important compared to that between AR/VR and utilitarian products. Romero-Charneco et al. (2025) also implies that the interaction between an AI chatbot and the hospitality industry has more positive impacts on the measured variables, which are performance expectancy, hedonic motivation, price value, and habit. In this research, trust and satisfaction will be measured separately about the media and information gained from the searching process. This separation was intended to facilitate a deeper analysis of consumer responses to both variables. The research framework for the following developed hypothesis can be seen in Figure 2.

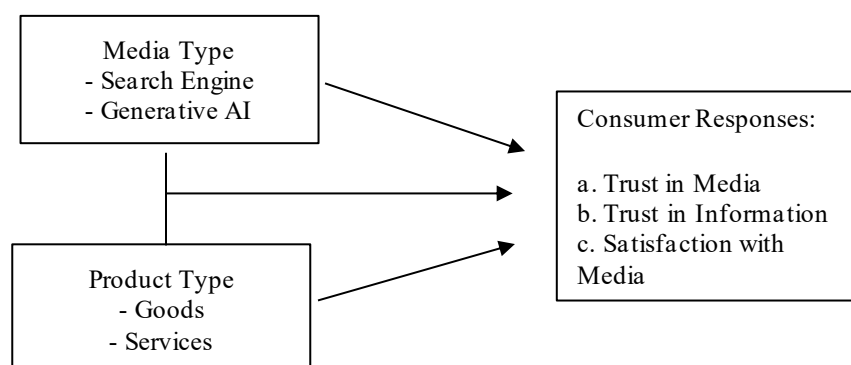


Figure 2. Research Framework

Source: Author (2025)

H1: Digital information search media have a significant influence on trust (in media and information), satisfaction (with media and information), and purchase intention.

H2: Product types have a significant influence on trust (in media and information), satisfaction (with media and information), and purchase intention.

This research also identifies the possibility of interaction between media and product types and their influence on dependent variables. The hypothesis for this objective was developed as:

H3: Interaction between digital media and product types has a significant influence on trust (in media and information), satisfaction (with media and information), and purchase intention.

RESEARCH METHOD

The form of research used in this study is quantitative research with a causal research design to identify the cause-and-effect relationship between two or more variables. Research design is an experimental design that utilizes a quasi-experimental design with a static group comparison, specifically a 2x2 factorial between-subjects design. The population of this study consisted of users of search engines and generative AI, aged 20-40 years old. Participants were chosen from different background consists of students, employee and freelancer. This experiment limit participants aged 20-40 following previous research said Gen Z is the highest Generative AI adopter. The number of valid participants in the experiments was 146.

The study was conducted through an online questionnaire with time limits. Participants are divided into four different experimental groups and being conditioned or manipulated with instructions to search for information according to their group. The topic used for these experiments was preparing for a holiday abroad and searching for information using a search engine or generative AI, as well as for goods and services. Items are measured using a 1-5 Likert scale. Apart from five dependent variables, this experiment also includes covariate aimed at controlling potential prior experiences or personal preference.

Participants must complete the experiments within 30 minutes. Participant subjected to fill manipulation test and questionnaire related to covariate before doing the experiment. The primary data source for this research was collected through questionnaires, with additional information gathered from the literature. Responses gathered from questionnaires was analyzed using ANCOVA model to include covariate. The Experiment Design you can see table 1.

Table 1. Experiment Design

Product Types	Digital Information Search Media	
	Search engine	Generative AI
Goods	Group A	Group B
Services	Group C	Group D

Table 2. Validity and Reability Result

Variables	Code	Indicator	Factor Loading	Cronbach's Alpha
Trust In Information	TI1	Information is trusted	0.869	0.942
	TI2	Information is reliable	0.854	
	TI3	Trust that information is relevant based on input	0.861	
	TI4	Informations is credible	0.894	
	TI5	Confident to use information provided	0.900	
Satisfaction with Media	SM1	Using the media to look for information feels right	0.758	0.910
	SM2	Satisfaction with media speed in information searching	0.762	
	SM3	Satisfaction with the interaction with the media	0.898	
	SM4	Satisfaction with the output given by the media	0.820	
	SM5	Overall satisfaction with the media	0.867	
Satisfaction with Information	SI1	The information provided is aligned with the needs	0.828	0.939
	SI2	The information provided is relevant to the input	0.878	
	SI3	Satisfaction with information quality	0.903	
	SI4	Satisfaction with the amount of information provided	0.865	
	SI5	Overall satisfaction with the information	0.873	
Purchase Intention	PI1	Attracted to purchase	0.866	0.924
	PI2	Possibility to purchase	0.682	
	PI3	Excited to purchase	0.868	
	PI4	Planning to purchase	0.932	
	PI5	Choose to purchase	0.866	

RESULT AND DISCUSSION

Validity and Reliability Test Result

The validity and reliability test were conducted by 146 participants who passed the manipulation check. Based on findings from the validation and reliability test shown in Table 2 regarding all dependent variables tested, it is evident that all the items for each variable are reliable due to the value for Cronbach's Alpha coefficient >0.7 . For validity test, data was analyzed using exploratory analysis and resulting in factor loading for all items used for each variable >0.5 . This confirms all the questions for testing variables are valid.

Univariate Analysis

Descriptive analysis was conducted by examining the mean scores of the dependent variables across each independent variable. Higher mean scores indicate a more positive inclination towards

Table 3. Univariate Analysis Result

Dependent Variable	Independent Variable	Mean	Std.Deviation
Trust In Media	Search Engine	4.113	0.651
	Generative AI	3.777	0.927
	Goods	4.066	0.747
	Services	3.847	0.857
Trust In Information	Search Engine	3.955	0.677
	Generative AI	3.620	0.845
	Goods	3.929	0.742
	Services	4.671	0.794
Satisfaction with Media	Search Engine	4.092	0.623
	Generative AI	3.877	0.733
	Goods	4.083	0.666
	Services	3.903	0.694
Satisfaction with Information	Search Engine	4.042	0.630
	Generative AI	3.834	0.740
	Goods	4.023	0.671
	Services	3.868	0.704
Purchase Intention	Search Engine	4.058	0.672
	Generative AI	3.631	0.809
	Goods	3.894	0.793
	Services	3.816	0.750

search engines compared to generative AI, as well as goods compared to services, in all dependent variables. Univariate analysis results are explained more in Table 3.

Hypothesis Testing

Hypothesis was tested using ANCOVA with additional variables of familiarity and likeability as control covariate. ANCOVA result as explained in Tabel 4.

The hypothesis for this research are:

H1: Digital media for information searching has a significant influence on (a) trust in media, (b) trust in information, (c) satisfaction with media, (d) satisfaction with information, (d) satisfaction with information, (e) purchase intention

H2: Product types have a significant influence on (a) trust in media, (b) trust in information, (c) satisfaction with media, (d) satisfaction with information, (e) purchase intention

H3: Interaction between digital media types and product types has a significant influence on (a) trust in media, (b) trust in information, (c) satisfaction with media, (d) satisfaction with information, (e) purchase intention.

Table 4. ANCOVA results

Dependent Variables	Faktor	Sum of Squares	df	Mean Square	F	p
Trust in Media	Media Types	1.542	1	1.542	3.84	0.052
	Product Types	4.282	1	4.282	10.662	0.001
	Media x Product	3.393	1	3.393	8.448	0.004
	Familiarity*	1.889	1	1.889	4.705	0.032
	Likeability*	24.539	1	24.539	61.104	<.001
Trust in Information	Media Types	0.491	1	0.491	1.198	0.276
	Product Types	5.014	1	5.014	12.231	<.001
	Media x Product	2.666	1	2.666	6.504	0.012
	Familiarity*	1.018	1	1.018	2.511	0.115
	Likeability*	22.006	1	22.006	53.681	<.001
Satisfaction with Media	Media Types	1.3	1	1.3	3.95	0.049
	Product Types	2.69	1	2.69	8.171	0.005
	Media x Product	1.714	1	1.714	5.208	0.024
	Familiarity*	1.28	1	1.28	3.889	0.051
	Likeability*	13.818	1	13.818	41.974	<.001
Satisfaction with Information	Media Types	1.126	1	1.126	3.188	0.076
	Product Types	2.127	1	2.127	6.022	0.015
	Media x Product	1.948	1	1.948	5.515	0.02
	Familiarity*	1.298	1	1.298	4.674	0.057
	Likeability*	12.109	1	12.109	34.287	<.001
Purchase Intention	Media Types	0.038	1	0.038	0.093	0.760
	Product Types	1.332	1	1.332	3.268	0.073
	Media x Product	1.107	1	1.107	2.715	0.102
	Familiarity*	0.127	1	0.127	0.310	0.579
	Likeability*	21.052	1	21.052	51.652	<.001

*Covariate control

Table 4 presents the ANCOVA results for all variables, including covariates familiarity and likeability with the media. Hypothesis H1, where media types were tested for dependent variables, shows a significant influence of media types towards (c) satisfaction with media with a p value <0.05 (0.049). However, for other variables, media types do not show any significant influence, with p-values above the 0.05 threshold. Therefore, the H1 hypothesis is partially accepted due to its significant influence only on satisfaction with media (H1c).

The comparison of product types results for H2 shows a significant influence on (a) trust in media, (b) trust in information, (c) satisfaction with the media, and (d) satisfaction with information, with a p-value below 0.05. However, the results do not have a significant influence on purchase intention. Therefore, the H2 hypothesis is partially accepted due to significant influences on some dependent variables (H2a, H2b, H2c, H2d).

Results show that interactions exist between media and product type, significantly influencing trust in both media and information, as well as satisfaction with both media and information. However, no significant interactions were found regarding purchase intention, as the p-value is higher than 0.05.

Hence, H3 is also partially accepted (H3a, H3b, H3c, H3d).

DISCUSSION

The research found that consumer response is impacted by both media type and product type, although not all dependent variables are affected as expected. Statistical analyses ran with ANCOVA and include familiarity and likeability as control covariates. Prior to ANCOVA, Pearson's correlation analysis was conducted to test correlation between dependent variables and covariates. Analysis revealed a significant correlation across all pair where $p < 0.05$ and r values ranging from 0.2-0.8. As shown in Table 4 previously, likeability demonstrated a consistent significant relationship significant p-value with 0.001 for all dependent variables which indicates that the covariate might influence participant response towards dependent variables. In contrast, familiarity was only significantly correlated with trust in media, suggesting a more limited effect towards participant responses.

ANCOVA results showed that digital information search media shows only significant value towards satisfaction with media. While univariate analysis previously shows a positive inclination towards search engines for all dependent variables, the adjusted mean value in ANCOVA analysis tells otherwise. This shift might be influenced by control covariates included in the model that indicates participant's prior familiarity and likeability towards the media they used for the experiment may have influenced their initial responses. The adjusted means show a higher number for generative AI compared to search engines after considering the influence of covariate control. These results suggest that generative AI may have a more substantial impact on consumer response compared to search engines. However, this is not statistically supported by the ANCOVA results, except for satisfaction with the media. This finding aligns with a previous study by Zhou and Li (2024), which suggests that consumer behavior is shifting from search engines to generative AI in terms of information search. This finding also supports Mogaji and Jain's (2024) explanation that generative AI has the potential to change consumer behavior.

Product types also yield significant results for additional dependent variables, including trust in media, trust in information, satisfaction with the media, and satisfaction with information. These findings align with a previous study by Melero and Montaner (2016), which suggests that types of product influence consumer responses, particularly in terms of trust and satisfaction. This finding also aligns with a previous study by Wachowicz (2021), which revealed that the credibility of information on a specific product affects consumer response in a digital information search context.

A significant interaction was found between media and product type in four variables: trust in media, trust in information, satisfaction with media, and satisfaction with information. However, the

media type was not found to influence a few of these variables significantly. Yet, still, no interaction has been observed in terms of purchase intention. Post-hoc analysis was conducted for variables where an interaction was found. Generative AI and goods have a more significant interaction compared to other pairings and higher adjusted mean number. This study indicates that the interaction between different types of media and products will impact consumer response differently, aligning with a previous study by Mishra et al. (2020), which shows that the interaction between technology and various products will significantly influence consumer response.

Interestingly, there is almost no significance when the media type was tested alone. In contrast, there are significant influences when they interact with products. Significance is demonstrated in interaction even if the main effect is not substantial, which may be attributed to covariate control that significantly enhances the sensitivity of ANCOVA towards a particular model (Schwarz, 2025).

CONCLUSION AND SUGGESTIONS

This study demonstrates that the use of digital media for information search and product types can influence consumer response. The tests on validity and reliability suggest that the tools utilized in this research are reliable and valid. The data analysis reveals that interactions between media type and product type may affect consumer trust and satisfaction, although no impact has been found on purchase intention. This can indicate that participants' purchase intention could depend on more complex determinants rather than only rely on information given or interaction with media. In previous study conducted by Ling et.al (2023), perceived value and trust can act as mediators between knowledge and purchase intention and trust can significantly drives purchase intention. It might explain, why on this experiment, where independent variable relationship with purchase intention does not show any significant result. Although no significant direct effect was observed the study suggests that the current phenomenon of generative AI's popularity can significantly alter information search behavior, especially when paired with the right product type.

For consumers, this study highlights the possibility of generative AI became a helpful tool during the pre-purchase stage. It allows users to search, compare, and evaluate product information more efficiently before deciding what to buy. However, its use still seems to focus on exploring and understanding options rather than completing actual purchases. For business users, consider utilizing generative AI because its capability to create more personalized and responsive interactions with customers. It can be used to improve consumer experience and engagement such as AI-based chat or recommendation features, analyze common customer questions to refine marketing and product strategies.

There are some limitations of this study where study conducted online without supervision and

solely rely on time limitation so it's difficult to ensure that information search during experiment was done as expected from the participants. Participants' age also not accounted as covariate and only as the first filter, hence the prediction about Gen Z are more exposed and advanced in using Generative AI has not answered yet.

For future research, it is recommended to use a more in-depth framework from other theoretical backgrounds, particularly by utilizing the hierarchy of the S-O-R framework to explore whether trust and satisfaction can serve as the organism and purchase intention as the response, rather than placing them at the same level. Also include age as covariate to predict technology adoption shifting based on consumer's generation. Focus group discussions are also recommended to gather in-depth knowledge regarding the comparison of search engines and generative AI from the consumer's perspective.

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