

A COMPARATIVE STUDY OF ChatGPT AND GEMINI AS AI TOOLS FOR INSTAGRAM CONTENT IDEATION IN SMALL BUSINESS

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ABSTRACT

Digital marketing through Instagram demands a high level of content consistency; however, this remains a major challenge for micro-enterprises due to limited resources. Generative Artificial Intelligence (AI) technologies, such as ChatGPT and Gemini, offer potential solutions to enhance efficiency, yet their specific effectiveness in addressing the needs of micro-businesses remains underexplored. This study aims to comparatively analyze the quality, relevance, and utility of content ideas generated by these two platforms based on the perceptions of micro-entrepreneurs. A qualitative descriptive approach was employed, with data collected through in-depth interviews and live experimental sessions involving nine micro-enterprise owners in Indonesia, selected via purposive sampling. The data were analyzed using thematic analysis supported by MAXQDA software to identify dominant preference patterns. The findings reveal that the majority of participants (7 out of 9) preferred ChatGPT, citing its strengths in producing a more natural tone of voice, effective role-playing capabilities, and detailed visual scripting. In contrast, Gemini demonstrated advantages in data validity, localization (i.e., understanding of local cultural context), and the systematic presentation of information in tabular formats. The study concludes that execution efficiency and ease of use are the primary determinants for micro-enterprise users. Accordingly, a hybrid strategy is recommended: utilizing Gemini for research and planning stages, and ChatGPT for creative content production.

Keywords: *Artificial Intelligence, Content Ideation, Instagram, Micro-Enterprises, Digital Marketing*

INTRODUCTION

Social media has become a vital platform for businesses to reach customers, but its effectiveness depends heavily on the ability to produce quality content. While social media marketing offers a relatively cost-effective option and creates a strong, engaging online presence, it requires a significant investment in human, time, and mental resources (Parashar, 2023). This challenge requires companies to create a stream of engaging content tailored to each platform's unique characteristics to foster consumer engagement (Appel et al., 2020). As a result, many businesses struggle to shift from mere promotional activities to strategic content creation that can build brands and sustainably leverage customer loyalty (Saputra et al., 2023).

Digital marketing is a marketing strategy that leverages the ever-innovating developments in information technology. To design an effective digital marketing strategy, companies need to consider both internal and external factors. Digital marketing is not simply a technology-centric concept, but rather an approach for businesses to leverage technology to build relationships with customers and increase product sales. The growth in internet users creates new opportunities for MSMEs to expand their market reach. Technological advancements and rapid globalization have brought significant changes to human civilization, pushing various aspects of life into the digital era (Saputra et al., 2023). The large number of MSMEs in Indonesia are currently utilizing digital marketing due to their broader reach and the effects of the pandemic.

This research focuses specifically on micro-enterprises. In accordance with Government Regulation (PP) No. 7 of 2021, micro-enterprises are businesses with annual sales of up to IDR 2 billion. The justification for selecting this specific criterion is based on two main reasons. First, the Micro-Enterprise segment most closely represents the challenge of limited resources, typically managed by sole proprietors who double as marketers and designers, and thus experience difficulties maintaining and managing online accounts (Permadi et al., 2025). Second, because of these limitations, Micro-Enterprises are the segment with the greatest potential to benefit from AI tools' efficiency gains. They are most in need of fast, affordable, and effective solutions for content ideation. Therefore, evaluating Micro-Enterprises' perceptions will yield the most relevant insights into the practical value of ChatGPT and Gemini as tools to address the digital divide and resource constraints.

Currently, competition for audience attention is increasingly fierce, requiring businesses and content creators to produce engaging and relevant content. The content creation process at Sunday Magazine follows Graham Wallas's theory of creativity, beginning with the preparation stage. At this stage, creators conduct research, gather information, and develop concepts before beginning content production. This demonstrates that creating interactive content requires considerable time and effort (Ridwan & Sari, 2022). Digital content is distributed through social media, web-based platforms that allow individuals to create public profiles, manage user lists, and explore connections (Boyd & Ellison, 2007). In a business context, social media is the primary channel for disseminating this digital content. Digital content and social media have a symbiotic relationship. Social media platforms like Instagram are the channels, while digital content is the message. Research shows that high-quality, relevant, and valuable content is a key driver for building consumer engagement and trust in a brand (Kim et al., 2021). Therefore, the challenge for businesses is not simply to have social media, but to

fill it with strategic, high-quality content.

Social media is a web-based platform that allows individuals to create public or semi-public profiles within a limited system, manage lists of other users with whom they share connections, and view and explore their own connections and those made by others within the system. Instagram, as the platform with the most users in Indonesia, is one of the most popular platforms for businesses to market their products or services. With its large user base, it is much easier to attract audiences with diverse content. This can also help brands attract a wider audience interested in their products or services, and even purchase and use them.

The social media platform chosen for this study to test the impact of AI-based content creation was Instagram because it is fundamentally a visual communication platform and one of the most widely used in Indonesia. Content marketing on Instagram is highly effective for building brand awareness because it can present products in an engaging, easily digestible way. This aligns with other studies that suggest Instagram's visual features (such as color, layout, and graphic design) play a significant role in strengthening brand image and consumer awareness (Octaviana & Zahara, 2024). The decision to focus the research on Instagram was based on this strategic consideration. From a business perspective, a platform with a massive user base like Instagram is not simply an option but a key arena for market reach. This large user base directly correlates with the potential for wider reach, thereby increasing the likelihood that potential consumers will see every published piece of content. Additionally, Instagram is a highly visual social media platform and brand on Instagram depends heavily on the visual and narrative quality of the digital content uploaded, especially through visually appealing, well-planned content, has been effective in increasing brand awareness and influencing purchasing decisions (Kusuma & Sugandi, 2018).

Artificial Intelligence (AI) is a technology that enables computers and machines to exhibit human-like intelligence and perform tasks similar to those performed by the human brain. With today's technological advancements, artificial intelligence has been used in almost every aspect of human life (Thilagavathy & Kumar, 2021). With AI support, marketers can identify target audiences more accurately and create more personalized experiences for users. Furthermore, AI enables marketers to analyze customer behavior, generate deeper insights, and improve four key marketing areas: customer targeting and lifetime value, customer engagement, customer experience, and customer loyalty (Maihani et al., 2023). With the advent of AI-based marketing solutions, marketers' workloads can be reduced by delegating some tasks to automated systems.

Chatbots are intelligent computer systems designed to mimic human interaction to provide automated assistance and guidance on online platforms. The growing benefits of chatbots have led to their widespread adoption across industries as customer-facing virtual assistants (Caldarini et al., 2022). Compared to other digital marketing strategies, studies on chatbots have increased the effectiveness of digital marketing. Various sectors, such as healthcare, education, digital counseling, and insurance, continue to conduct in-depth research to develop automated robot simulation software capable of interacting with humans. This technology leverages various branches of artificial intelligence (AI), including decision-support systems, artificial neural networks, and autonomous exploration techniques (Thilagavathy & Kumar, 2021).

ChatGPT is an artificial intelligence-based natural language processing model developed by OpenAI, designed to support the development of chatbot applications that can interact with users in natural language and provide relevant, informative responses to

questions or statements. ChatGPT has been used across sectors such as customer service, medical consultations, education, and more. In various situations, ChatGPT plays a role in accelerating and improving the efficiency of processes involving interactions between humans and automated systems (Subagja et al., 2023).

Gemini AI is a revolutionary multimodal conversational system designed to surpass traditional large text-based language models like GPT-3 and even its multimodal predecessor, ChatGPT-4. Gemini is architected to process a range of data types, including text, images, audio, and video, enabling advanced multimodal understanding (McIntosh et al., 2023). The selection of ChatGPT and Gemini as the primary subjects of this study is based on their unique and representative positions within generative artificial intelligence. ChatGPT, developed by OpenAI, is a pioneer in successfully popularizing AI chatbot technology to the wider community. The popularity of ChatGPT in Indonesia as the most widely used AI application makes its impact a relevant area of study. Globally, the technology's adoption rate is unprecedented, establishing it as an industry standard (benchmark) in natural language processing (Chatterji et al., 2025)

On the other hand, Gemini, developed by Google, represents technological evolution and competition at the highest level. A comparative study highlights fundamental differences in their architectures: while ChatGPT excels at fast, efficient text processing, Gemini is designed with multimodal capabilities that enable integrated handling of diverse inputs (text, audio, video, and images). This capability positions Gemini as a direct challenger to ChatGPT, offering a different approach to content creation: it is not solely text-based but can also process ideas from various media formats (Rane et al., 2024).

While implementing AI in digital marketing poses numerous challenges, this study's findings demonstrate the enormous potential of AI, particularly in Indonesia, which is experiencing rapid digital transformation. AI opens new opportunities for businesses to conduct more effective, efficient, and responsive marketing in response to rapidly changing market dynamics (Faridatul & Purwanto, 2025). Therefore, this study aims to qualitatively analyze business owners' perceptions and preferences regarding the output (both prompts and visuals) generated by ChatGPT and Gemini. These findings can provide practical guidance for businesses in selecting the most effective AI tools that best suit their content strategy challenges and needs. Based on this background, this study formulated two main questions (1) How do business owners perceive the quality and feasibility of content ideas (including prompts and visuals) generated by ChatGPT and Gemini for the Instagram platform? (2) What factors are business owners primarily considering when choosing between content ideas provided by ChatGPT and Gemini?

RESEARCH METHOD

This study uses a qualitative research design with a descriptive approach. A descriptive approach systematically describes the phenomenon's facts and characteristics accurately, without manipulation. This approach focuses on describing and understanding the experiences of business owners in evaluating and comparing the outputs of ChatGPT and Gemini.

Data Collection & Respondent Profile

Interviews were conducted online, allowing for the reach of micro-business owners from several regions in Indonesia. The criteria for key informants to be included were:

1. Business owners (owners, managers, or staff) are directly responsible for decisions about Instagram content strategy.
2. Specifically, they were categorized as micro-businesses, with annual sales not exceeding IDR 2 billion.
3. They had an active Instagram business account for at least one year.
4. Experience using AI chatbots (at least ChatGPT and Gemini) to assist with work or content ideation.
5. Residents in Indonesia who are willing to be interviewed online.

Regarding the number of informants, this study employed the principle of data saturation. Data saturation is a fundamental concept in qualitative research, defined as the point in data collection where new data no longer yields new insights or additional themes (Saunders et al., 2018). In other words, an adequate number of informants is not determined by a minimum number, but rather by achieving the required depth and richness of data (Vasileiou et al., 2018). To ensure data depth, this study targeted interviews with at least 9 micro-entrepreneurs. This number was determined based on findings from a systematic review that found code saturation, the point at which most of the main themes have been identified, is generally achieved by the ninth interview (Hennink & Kaiser, 2022).

Table 1. Research Informant Profile

Code	Business ID	Age of Owner	Length of Business	Business Category	Location
IN-01	Moowy	21	2 years	F&B	Makassar
IN-02	Lovaire official	26	3 years	Fashion	Online
IN-03	Eiji Digital Enterprise	33	2 years	Digital Agency	Surabaya
IN-04	Encharme.id	22	2 years	Accessoris	Online
IN-05	Kedai Sinar Abadi	30	>1 year	F&B (Asian Food)	Salatiga
IN-06	Pomodoro Studio	30	2 years	Fashion	Salatiga
IN-07	Mevie Salon	40	>10 years	Beauty	Surabaya
IN-08	Liliette tattoo	28	1,5 years	Studio Tatto	Surabaya
IN-09	Avebellenails	29	2 years	Nail Art	Sidoarjo

Source: Data processed (2025)

Research Instrument

The primary instrument (human instrument) was the researcher herself. The researcher acted as a data collector, actively asking questions, observing, and interpreting data.

In addition, the researcher used supporting instruments in the form of:

1. *Interview Guidelines*: A list of semi-structured questions compiled based on the Research Focus to guide the interview process. The questions focused on comparing the two AI chatbots and exploring perceptions of relevance, personalization, and visual quality.
2. *Stimulus Materials*: A prompt template prepared by the researcher. This template was designed to be filled with the informant's specific business data during the interview. The evaluated stimulus materials were the output of 10 content ideas generated directly by ChatGPT and Gemini during the interview session. This

step was done to ensure that the stimuli assessed were highly relevant to the informant's current business context.

3. *Recording Device*: A digital device (cell phone or dedicated recorder) to record the entire audio interview session (with the informant's consent). The purpose was to ensure that all conversational data was recorded accurately and completely for transcription.

Data Analysis Techniques

The data analysis in this study uses a thematic analysis model to process qualitative data from interviews. To facilitate the systematic and efficient coding and thematization of interview data, this study will utilize Computer-Assisted Qualitative Data Analysis (CAQDAS) software, namely MAXQDA. The stages are as follows:

1. *Data Transcription*: Converting all recorded interview data into text (transcripts).
2. *Data Reduction (Coding)*: The researcher reads the transcripts and codes informant statements relevant to the research focus (e.g., Gemini visual preferences, ChatGPT text speed, idea relevance).
3. *Data Presentation (Thematization)*: Grouping similar codes into main themes or patterns. The data will be presented in descriptive narrative form and supported by direct quotes from informants, based on the interview results.
4. *Conclusion Drawing (Verification)*: Based on the analyzed themes, the researcher will draw conclusions to address the Research Focus and Research Objectives.

RESULT AND DISCUSSION

Data analysis was conducted using a Thematic Analysis approach with the aid of MAXQDA software. Data from interview transcripts were reduced to codes, then grouped into main themes. As the initial step in data presentation, the researchers compiled a Key Findings Matrix. This table presentation is based on the principles of Data Reduction and Data Display in qualitative research. This table maps the distribution of perceptions and shows which informants supported the emergence of these themes.

Table 2. Key Findings Matrix and Informant Preference Patterns

Analysis Category	Dominant Theme/Code	Code of Key Informant Supports	Significant Findings
Preference	<i>Chose: ChatGPT</i>	IN-03, IN-04, IN-05, IN-06, IN-07, IN-08, IN-09	Preferences dominate in humanistic aspects, natural language style, and flexibility.
	<i>Chose: Gemini</i>	IN-01, IN-02	Specific preferences on realistic visual needs and data structures (tables).
Text Quality	<i>Natural Flexible</i>	& IN-04, IN-06, IN-07, IN-09	ChatGPT is considered superior in imitating human language (human-like) for soft-selling.
	<i>Stiff and Formal</i>	IN-05, IN-08, IN-09	Gemini is perceived as too formal/article, less suitable for casual social media.
Visual Quality	<i>Table Format</i>	IN-02	Gemini's unique advantage is in presenting dense information neatly.
	<i>Video Scenario</i>	IN-09	ChatGPT excels at providing visual scripting (video directions) for content creators.
Utility Factor	<i>Ready to Use (Efficiency)</i>	IN-05, IN-06, IN-09	A key factor for Single Fighters who prioritize speed of execution.

Analysis Category	Dominant Theme/Code	Code of Key Informant Supports	Significant Findings
Relevance	<i>Roleplay (Interactive)</i>	IN-03, IN-08	A key factor for Experts/Agencies who need interactive discussion partners.
	<i>Regional Localization</i>	IN-01	Gemini excels in understanding cultural context and specific locations (Makassar).
	<i>Brand Aesthetics</i>	IN-04	ChatGPT excels at understanding abstract nuances like “aesthetic” and “girly”.

Source: Data Processed (2025)

Data analysis involved identifying the frequency of occurrence of specific codes in the interview transcripts. To provide a comprehensive visual depiction of the themes that dominated the informants' discussions, the researchers presented a Code Cloud visualization processed using MAXQDA software, as shown in Figure 1 below:

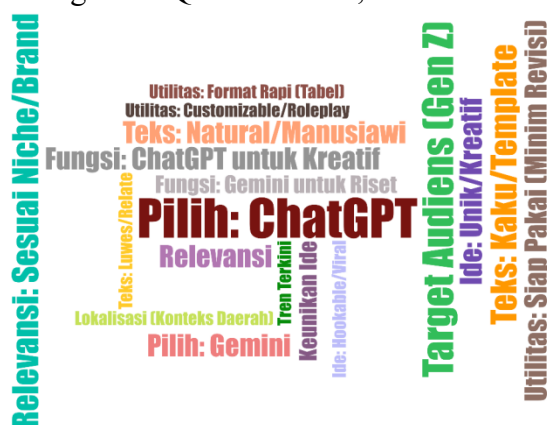


Figure 1. Code Cloud Visualization of Dominant Themes
Source: MAXQDA Data Processing (2025)

Based on the synthesis of all the above findings, this study found that although ChatGPT was the dominant choice quantitatively (selected by 7 out of 9 informants), Gemini still plays an irreplaceable strategic role in certain work phases. In-depth analysis of informants with more experience, such as IN-03 (Eiji) and IN-07 (Mevie Salon), showed that optimal effectiveness is not achieved by selecting a single winner, but rather by adopting a Hybrid Approach. This approach divides AI functions based on their architectural strengths: Gemini for data logic (Logic/Fact) and ChatGPT for language creativity (Creative/Flow).

Table 3. Hybrid Strategy Matrix for AI Usage for MSMEs

Content Ideation Steps	Recommended Platform	Main Function	Informant Evidence-Based Reasoning
1. Research & Data Validation	<i>Gemini</i>	<i>Data Collector</i>	It excels in presenting the latest trend data, valid facts, and is integrated with Google Search. "Gemini's data is valid... collecting big data." (IN-03 Eiji)
2. Local and Cultural Context	<i>Gemini</i>	<i>Cultural Advisor</i>	Excellent understanding of specific local cultures (e.g., Makassar) that ChatGPT fails to capture. "More detailed location-wise... relates to Makassar life." (IN-01 Moowy)
3. Idea Structure (Brainstorming)	<i>Gemini</i>	<i>Structured Planner</i>	Presenting ideas in a neat table format makes it easy to quickly select ideas. "Making it look like

Content Ideation Steps	Recommended Platform	Main Function	Informant Evidence-Based Reasoning
4. Script Writing (Caption)	ChatGPT	Creative Copywriter	a table makes it neater... it's systematically structured." (IN-02 Lovaire) Produces language that is fluid, natural, emotional, and human-like. "The language is more fluid and more feminine... closer to the customer." (IN-07 Mevie)
5. Video Scenario (Reels)	ChatGPT	Visual Director	Provides detailed guidance on angles, transitions, and visual scenarios. "Clear visual descriptions are really helpful... for example, suggesting 'ASMR'." (IN-09 Avabelle)
6. Engagement Strategy	ChatGPT	Thinking Partner	Able to participate in roleplays and discussions to sharpen hook strategies. "Brainstorming with ChatGPT to create a strong hook." (IN-04 Encharme)

Source: Data Processed (2025)

The table above emphasizes that the definition of effectiveness is dynamic, depending on the business owner's work phase:

1. Planning Phase

In this phase, Gemini is a more effective tool. Its ability to present factual data, current trends, and tabular formats helps business owners quickly and accurately map out basic strategies. This finding addresses the need for validity and structure.

2. Execution Phase

In this phase, ChatGPT takes over. When ideas need to be transformed into communication assets (captions or video scripts), ChatGPT's ability to process emotions and language nuances becomes crucial for building a connection with the audience.

This study concluded that ChatGPT was the majority choice (*the overall winner*), not because it was perfect in every way, but because it excelled at the most critical point for MSMEs is final execution. Micro-business owners with extreme time constraints prioritize tools that produce ready-to-post content with a sales-oriented style. However, for business owners looking to elevate their strategy to the next level, integrating Gemini as a companion research tool is highly recommended.

CONCLUSION

Generally, ChatGPT is the preferred platform by the majority of micro-business owners (7 out of 9 informants) compared to Gemini. ChatGPT's main advantage lies in its text quality, which is considered more natural, flexible, and has an emotional/human touch, which is essential for social media captions. Furthermore, ChatGPT excels in providing detailed visual scripting, which is considered more actionable for video content creators than static generative images.

Although not the most popular choice for scriptwriting, Gemini has proven superior in data validity and in understanding local context. Business owners in specific locations (such as Makassar) prefer Gemini for its ability to capture local cultural trends that ChatGPT often misses. Furthermore, its tabular data presentation feature provides significant added value from a User Experience (UX) perspective for informants who prioritize neatness and order.

The primary consideration for micro-enterprises is not technological sophistication alone, but rather utility (practicality). For solo entrepreneurs, the best AI is the one that produces the most "ready-to-use" results with minimal revisions. On the other hand, for expert users, interactivity (roleplay) is key, where AI is no longer viewed as an answering machine but as a brainstorming partner. This study concludes that the effectiveness of AI in MSME digital marketing is not a single-factor approach. The best approach is a hybrid strategy, using Gemini in the Planning stage (trend research, location data, visual ideas) and using ChatGPT in the Production stage (caption writing, video scenarios, hook strategy).

This study has several limitations that readers and future research should consider. First, this study used a live experiment method within a limited interview period. Therefore, the results are based on perceived quality and do not measure the effectiveness of the content after it is actually uploaded to Instagram (e.g., the number of likes, comments, or sales conversions). This study compared ChatGPT and Gemini in the generally available free/public versions at the time of the study. Given the rapid development of AI, new features that may appear in the paid versions (ChatGPT Plus or Gemini Advanced) were not included in this analysis. Although informants came from various locations, the majority worked in the creative services and F&B sectors. The results of this study may differ if applied to highly technical industries or B2B (*business-to-business*) markets.

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