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# AIGC's Critical Incident Study on E-commerce Copy Writing and Advertising

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***Abstract:*** *In the booming era of e-commerce, copy writing and advertising have become key elements in attracting consumers and promoting sales. While the involvement of AIGC (Artificial Intelligence Generated Content) has brought numerous conveniences, how to utilize AIGC to generate high-quality content for e-commerce copy writing and advertising has become a crucial issue in the e-commerce field. For e-commerce merchants, high-quality and compliant copy writing advertisements are core factors for increasing sales conversion rates. From the perspective of e-commerce platforms, guiding AIGC-generated copy writing advertisements can improve user experience. Furthermore, from the overall industry development perspective, it is more conducive to promoting the deep integration of AIGC and the e-commerce industry. This study uses the Critical Incident Technique to deeply explore users' experiences with AIGC in e-commerce platform copy writing advertisements. The research results show that users are highly satisfied with the efficiency and accuracy of AIGC in e-commerce copy writing advertisements, but less satisfied with issues such as severe homogeneity and lack of emotional content in AIGC-generated copy writing. Strengthening human review and intervention mechanisms can improve the quality of AIGC-generated e-commerce copy writing advertisements. It is hoped that the results of this study can help AIGC gradually improve in the field of e-commerce copy writing and advertising, creating a better e-commerce environment and economic value.*

***Keywords:*** *AIGC, E-commerce, E-commerce Advertising, Copywriting Advertising Critical, Incident Technique*

## 1. Introduction

With the continuous development of the internet, the scale of e-commerce platforms is expanding, and competition in e-commerce is becoming increasingly fierce. Capturing consumers' attention and effectively conveying product information have become key factors for successful e-commerce operations. Copy writing advertising, as a new form of marketing, is an important method to assist in the success of e-commerce platforms. AIGC, with its powerful text retrieval and data analysis capabilities, is widely used in e-commerce Copy writing advertisements. Although the application of AIGC in e-commerce platform Copy writing advertisements provides certain conveniences, there is still room for improvement in the deep excavation and skillful integration of Copy writing advertisements. This study will conduct a multi-dimensional, multi-level systematic evaluation of AIGC Copy writing advertisements using the Critical Incident Technique to promote the sustainable development of AIGC in e-commerce platform Copy writing advertisements. The study aims to optimize AIGC's precision and quick response functions in e-commerce Copy writing advertisements, allowing it to capture key information from vast amounts of data and present it logically and vividly in advertisements. This will create clear, creative Copy writing advertisements. By gaining a deep understanding of AIGC users' experiences, this study hopes to make AIGC more practically significant in e-commerce platform Copy writing advertisements.

## 2. Literature Review

### *2.1. The Development and Application of AIGC*

AIGC (Artificial Intelligence Generated Content) refers to content automatically or semi-automatically generated by AI systems, including text, images, audio, and video. With the continuous

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development of AIGC, discussions on its development have been increasing in both academia and industry. Guangyuan Liu, Hong yang Du, and others argue that AIGC services have great potential in digital content creation[1]. Jiayang Wu, Wensheng Gan, and others pointed out in their study that AIGC generates content based on user-input keywords or requirements, and as an upstream technology, it has unlimited potential to support various downstream applications[2]. Hanky Cao and others highlighted in their research that the goal of AIGC is to make the content creation process more efficient and accessible, allowing for the production of high-quality content at a faster pace. In recent years, large-scale models have become increasingly important in AIGC[3]. Xiangyu Li, Yuqing Fan, and Shenghui Cheng noted that AIGC has brought profound impacts on various aspects of daily life, industrial manufacturing, and academic sectors[4]. However, some scholars have different views on the development of AIGC. Tao Wang, Yushu Zhang, and others pointed out in their research that the proliferation of AIGC in cyberspace has raised security and privacy issues, including personal privacy breaches and media forgery for fraudulent purposes[5]. Hongyang Du and Ruichen Zhang indicated that the energy consumption and privacy issues of AIGC models have become significant challenges[6]. Therefore, research on the development of AIGC is crucial, as it aids in further studying the application of AIGC in e-commerce platform copy writing advertisements.

### *2.2. Exploration of AIGC in E-commerce Copy writing Advertising*

Based on the gradual maturity of AIGC technology, many studies have focused on its application in the generation of e-commerce copy writing advertisements. Weifeng Li, Minghui Jiang, and Wentao Zhan found that the emergence of short videos provides a new way for advertisers to place online video advertisements, with the quality of the advertisements being the main factor in attracting consumers. They suggest presenting advertisements in the shortest possible duration and displaying them after longer programs[7]. Shasha Deng, Chee-Wee Tan, Weijun Wang, and Yu Pan pointed out in their research that contemporary programmatic advertising has not fully utilized self-generating technology, resulting in different consumers encountering the same content. Their research indicates that the application of artificial intelligence in online advertising has significant implications[8].Leonidas Hatzithomas et al explored the impact of visual and verbal metaphors on the effectiveness of online advertisements, stating that the execution of advertising copy (hard sell versus soft sell) moderates the relationship between the metaphors used and consumers' evaluations of the advertisement and brand. Metaphors lead to positive attitudes and increased click-through rates (CTR) in soft sell contexts, while literal advertisements with hard sell content improve attitudes and CTR[9]. Shaunak Mishra, Manisha Verma, and others studied the optimization of e-commerce copy writing advertisement generation, guiding AI models to continuously adjust generation strategies to create copy writing that aligns with user preferences, enhancing e-commerce marketing effectiveness[10].

In summary, while numerous research achievements exist in the field of AIGC in e-commerce copy writing advertisements, there are still areas that require improvement and optimization. Therefore, this study further explores the relationship among AIGC, e-commerce, and copy writing advertising. As shown in Figure 1 below, these three elements are highly interconnected, and their close integration can significantly enhance the quality and value of AIGC in e-commerce copy writing advertisements.

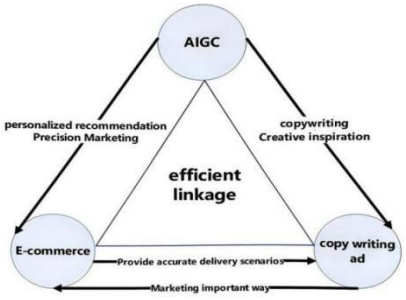


*Figure 1: The relationship diagram of AIGC, E-commerce and Copy writing ad*

## 3. Research Method

### *3.1. Critical Incident Technique*

The Critical Incident Technique (CIT) was proposed by Flanagan in 1954. It aims to reveal behavioral

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patterns, effective or ineffective workflows, and other key information by collecting, analyzing,including satisfactory and unsatisfactory events. CIT has been applied in various fields. Timothy M. Dasinger and Melinda A. Solmon used CIT to investigate sources of anxiety in physical activities[11]. Andrea Woodburn, Alexandro Allison-Abaunza, and others applied CIT in education to study the impact of mentors on students' learning[12]. Kim Janssens, Cees J. Gelderman, and Jordy Petersen explored the critical points of significant shifts in supplier (dis)satisfaction using CIT[13]. This study adopts this method to examine the role of AIGC in e-commerce platform copy writing advertisements, aiming to enhance the development of AIGC in e-commerce copy writing advertisements.

### *3.2. Research Design*

This study collects users' experiences of the "most satisfactory" and "most unsatisfactory" events when using AIGC multimedia advertisements. The questionnaire is designed to include questions such as "What was the most satisfactory event experience you had while using AIGC-generated multimedia advertisements?" and "What was the most unsatisfactory event experience you had while using AIGC-generated multimedia advertisements?" This approach evaluates users' overall impressions of AIGC in e-commerce copy writing advertisements, summarizes the key factors affecting user satisfaction.This study will use random sampling to select participants, distributing the questionnaire online through multiple channels such as email and social media groups. The collection period is from September 10, 2024, to September 26, 2024.

## 4. Data Analysis

### *4.1. Basic Information*

In this data collection, a total of 95 users participated in filling out the relevant data. From a gender perspective, 50 participants were male, accounting for approximately 53%, and 45 participants were female, accounting for approximately 47%. After screening and verifying the data, 10 entries that deviated from the research topic, lacked key incidents, or had illogical answers were excluded, resulting in 164 valid data entries. Further analysis of the valid data revealed that there were 85 satisfactory incidents (approximately 52%) and 79 unsatisfactory incidents (approximately 48%). These data will provide strong support for further exploration of the role and impact of AIGC on e-commerce copy writing advertisements.

### *4.2. Classification Principles*

Through further analysis and arrangement, the researchers extracted 5 categories from 85 valid satisfactory event data and 79 valid unsatisfactory event data. The classification of satisfactory events and description are shown in Table 1, namely efficiency, accuracy, innovation, diversity and extensibility. The classification of unsatisfactory events and description are shown in Table 2, namely homogeneity, emotional, innovation, limitations and accuracy.

*Table 1: Classification of Satisfactory Events and Descriptions*

| Category | Description |
|---|---|
| **Efficiency** | Can generate a large amount of copy in a short time, saving manual writing time |
| **Accuracy** | Generates highly accurate copy based on product attributes and user preferences |
| **Innovation** | Can collect various copy styles, bringing new creativity to advertisements |
| **Diversity** | Generates different types of copy, including product descriptions,marketing emails, etc |
| **Extensibility** | Provides additional suggestions and ideas beyond user requirements |

*Table 2: Classification of Unsatisfactory Events and Descriptions*

| Category | Description |
|---|---|
| **Homogeneity** | High repetition rate of copy, making it difficult to select the best quality copy |
| **Emotional** | AIGC's copy lacks the nuanced emotions that humans possess |
| **Innovation** | Lacks creativity; some copy content is outdated and does not keep up with current trends |
| **Limitations** | AIGC algorithms have limitations, leading to errors in logic and grammar |
| **Accuracy** | Fails to address the core of the query and cannot accurately capture key user points |

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### *4.3. Reliability and Validity Testing*

Reliability analysis of critical incident technique classification can generally be divided into individual classification consistency detection and inter-coder reliability (Flanagan, 1954). Reliability and validity are key indicators to ensure that the measurement tool or method can provide consistent, stable, and reliable results under different contexts or at different time points, which is crucial for the accuracy and reliability of the research results.

#### *4.3.1. Individual Classification Consistency*

Individual classification consistency refers to the degree of consistency in the characteristics or attributes exhibited by an individual under different classification standards. It is generally believed that when the consistency degree between two or more classifiers is greater than 0.8, the classifiers have good consistency. In this study, the first classifier is a university professor specializing in e-commerce; the second classifier is a professional in advertising planning; the third classifier is an executive in an e-commerce company. After completing the classification, each classifier's individual classification consistency was evaluated. The individual mutual consistencies of the three classifiers in satisfactory events are 0.91, 0.9 and 0.92 respectively, and in unsatisfactory events are 0.87, 0.92 and 0.87 respectively, indicate that the individual classification consistency of the three classifiers is greater than 0.8, demonstrating good individual classification consistency among the classifiers.

#### *4.3.2. Inter-Coder Reliability*

Inter-coder reliability refers to the degree of consistency between different coders when classifying the same set of data after completing two rounds of classification. This consistency is an important indicator for measuring the reliability and stability of classification. In this study, two rounds of classification were conducted with a 14-day interval between them. After completing the two rounds of classification, we obtained Tables 3 and 4.

*Table 3: Number of Consistent Classifications among Coders - Satisfactory Events*

| Number | Classifier 1 | Classifier 2 | Classifier 3 |
|---|---|---|---|
| **Classifier 1** | 78 | —— | —— |
| **Classifier 2** | 67 | 77 | —— |
| **Classifier 3** | 66 | 68 | 79 |

*Table 4: Number of Consistent Classifications among Coders - Unsatisfactory Events*

| Number | Classifier 1 | Classifier 2 | Classifier 3 |
|---|---|---|---|
| **Classifier 1** | 69 | —— | —— |
| **Classifier 2** | 62 | 73 | —— |
| **Classifier 3** | 60 | 62 | 69 |

We use the following formula to calculate the reliability (R):

$$R = \frac{(N \times A)}{1+[(N-1)\times A]} \tag{1}$$

$$A = \frac{\frac{2M_{12}}{n_1+n_2}+\frac{2M_{23}}{n_2+n_3}+\frac{2M_{13}}{n_1+n_3}}{N} \tag{2}$$

R = Reliability

N = Number of classifiers

A = Average mutual consistency

M = Number of mutual consistencies among classifiers

n = Number of samples each classifier judged

Based on the formula, the following results were obtained:

*Table 5: Reliability Table for Classification*

| Classification | Average Inter judge Agreement (A) | Reliability (R) |
|---|---|---|
| **Satisfactory** | 0.859 | 0.948 |
| **Unsatisfactory** | 0.872 | 0.953 |

Through Table 5, we observed that the average mutual consistency between satisfactory and

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unsatisfactory events exceeded 0.8, demonstrating good stability and consistency of the data. Additionally, the reliability remains above 0.8, successfully passing the reliability test. This provides strong data support for further promoting the development of AIGC in e-commerce copy writing advertisements.

### *4.4. Classification Results*

Based on the categorical categories, Table 6 shows the classification of the different categories. In addition, the corresponding key events are extracted from the satisfactory and unsatisfactory events, and we can see the real experience of users more intuitively from Table 7.

*Table 6: Summary of Events Classification*

| Category | Classifier 1 | Classifier 2 | Classifier 3 | Average |
|---|---|---|---|---|
| **Efficiency** | 25 | 28 | 23 | 25.33 |
| **Accuracy** | 15 | 13 | 15 | 14.33 |
| **Innovation** | 18 | 17 | 15 | 16.67 |
| **Diversity** | 17 | 14 | 20 | 17 |
| **Extensibility** | 10 | 13 | 12 | 11.67 |
| **Homogeneity** | 1 | 14 | 17 | 16.33 |
| **Emotional** | 22 | 20 | 23 | 21.67 |
| **Innovation** | 15 | 16 | 14 | 15 |
| **Limitations** | 10 | 11 | 10 | 10.33 |
| **Accuracy** | 14 | 18 | 15 | 15.67 |

*Table 7: Examples of Critical Satisfactory Events*

| Category | Critical Incident Example |
|---|---|
| **Efficiency** | It was very fast, taking only about ten seconds, saving me a lot of time |
| **Accuracy** | The AI tool can make the ad content more accurate |
| **Innovation** | I just needed to input product features to generate different versions of the copy |
| **Diversity** | By inputting keywords and themes, it generated various types of copy |
| **Extensibility** | It not only generated the copy but also provided images and videos |
| **Homogeneity** | The ad copy generated by COPY.AI sometimes feels template-based and lacks uniqueness |
| **Emotional** | The ad copy generated by AIGC lacks emotion; most of the copy feels hollow |
| **Innovation** | The generated copy lacks creativity and fails to attract the target audience's attention |
| **Limitations** | specific products or scenes in the ads cannot be accurately identified |
| **Accuracy** | The AI couldn't understand my words properly and gave irrelevant responses |

Through the collected critical incidents, it is understood that AIGC plays an important role in content creation, inspiration, and personalized customization, but it also faces issues like algorithm limitations, content repetition, and lack of emotion. The results show that among the 85 satisfactory events, efficiency has the highest proportion, with an average of 25.33 events, indicating that users are most satisfied with the timeliness and efficiency of AIGC copy writing. The next most significant factor is innovation, with an average of 16.67 events. AIGC effectively alleviates the pressure in the copy writing process by providing various creative ideas based on user input. Among the 79 unsatisfactory events, emotional has the highest proportion, with an average of 21.67 events. Although AIGC can mimic certain emotional expressions in sentences, it struggles to possess the nuanced emotions that humans have, failing to meet the emotional needs of users. Additionally, AIGC-generated copy often suffers from severe homogeneity, with an average of 16.33 events, lacking sufficient differentiation. In summary, while AIGC meets user needs to a certain extent, it still requires continuous improvement to properly address existing issues and maximize its benefits in e-commerce copy writing advertisements.

## 5. Conclusions and Recommendations

Nowadays, AIGC in e-commerce copy writing advertising is rapidly developing. Its powerful algorithm mechanisms have led more users to choose AIGC for creating copy writing advertisements. However, it is important to note that AIGC also faces issues such as homogeneity, template-driven content, and inability to accurately capture user needs. Therefore, the following suggestions are proposed:

(1)Data Management and Feedback: A stringent data collection mechanism should be established. Using automated tools for large-scale data collection can enhance data acquisition efficiency. Introducing human review processes can better understand consumer information, enabling the generation of

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personalized copy writing advertisements. Additionally, a regular data inspection and cleaning mechanism should be established, collecting user feedback on copy writing advertisements via email and other channels to continuously improve data accuracy.(2)Technical Optimization and Improvement:E-commerce platforms and relevant technical teams should continuously invest resources to optimize AIGC's algorithm models, focusing on improving its logical reasoning and semantic understanding capabilities, reducing logical errors in copy writing, and enhancing the quality and accuracy of content generation. This ensures that the ad copy accurately conveys product information and selling points. Continuously improving training mechanisms to allow AIGC to learn and simulate human emotional expression can make generated copy writing more emotionally resonant with consumers.(3)Industry Standards and Regulatory Follow-Up: The process of generating copy writing advertisements using AIGC involves ethical and legal issues, such as false advertising, intellectual property infringement, and privacy breaches. If inaccurately expressed or maliciously exploited, it can mislead consumers and negatively impact e-commerce platforms and brands. (4)Team Building and Application Deepening: Establishing a cross-departmental communication platform can strengthen collaboration and communication among technical, marketing, and copy writing teams, leveraging each other's strengths to collectively improve the quality and effectiveness of copy writing advertisements. A real-time hot topic monitoring mechanism should be established, integrating relevant keywords and emotional trends of popular events into AIGC's generation rules in a timely manner.

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