Marketing to Chinese millennials: An examination of the effectiveness of UGC marketing on RED

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Abstract

This study aims to examine the effectiveness of user-generated content (UGC) marketing on the social commerce platform RED, focusing on Chinese millennials. It explores how content creators and consumers engage with UGC, highlighting the commercialization of content and its influence on purchasing decisions. The study uses a mixed-methods approach, combining semi-structured interviews with content creators and consumers, alongside a quantitative analysis of survey data. The entropy weight method (EWM) is employed to assess the impact of UGC on consumer trust and behavior. Content creators initially engage in UGC for informational and emotional support, but over time, many shift toward commercialization. Consumers trust UGC from influencers and ordinary users more than from celebrities, as interactions enhance credibility. High-quality UGC, offering detailed and authentic product reviews, significantly impacts purchasing decisions. This study contributes to understanding the commercialization of UGC and its role in shaping consumer behavior on social commerce platforms. It provides insights into how UGC marketing can be optimized to enhance trust and engagement, particularly for Chinese millennials on RED.

Keywords: China, Consumer behavior. Marketing communication, Social commerce, User-generated content.

1. Introduction

Social commerce platforms such as Amazon, Instagram, and Pinterest have significantly transformed the ways in which consumers interact with brands. User-generated content (UGC) is one of the key drivers of this change, enabling users to express themselves and engage in authentic communication [1]. UGC encompasses various forms, including images, text, and videos, which not only facilitate information exchange but also foster a community atmosphere [2]. This environment allows users to influence each other's purchasing decisions, thereby enhancing product visibility and credibility.

In China, the rapid growth of social commerce is primarily attributed to the increase in internet users and the widespread adoption of social media [3]. For instance, RED (Little Red Book), a leading platform that integrates social media and e-commerce functionalities, serves as a significant example of this transformation. RED employs a customer-centric e-commerce model driven by UGC, which not only optimizes marketing strategies but also enhances sales efficiency. Chinese

millennials, as the primary user group of RED, play a crucial role in content creation and consumption, thereby shaping overall consumer behavior and market trends on the platform [3].

Existing research has extensively explored the role of UGC in enhancing consumer trust and influencing purchasing decisions. Studies have indicated that UGC can serve as a powerful tool for brand-consumer interactions, leveraging the authenticity and peer recommendation effects inherent in user-generated reviews and content [4]. However, despite the growing body of literature, there remains a significant research gap concerning how the commercialization of UGC affects its effectiveness and the dynamic relationships between content creators and consumers, particularly within the context of Chinese social commerce.

Furthermore, although Social Support Theory and Uses and Gratifications Theory have been applied to examine the motivations behind UGC creation and consumption, there is still limited research on the evolution of motivations as content creators transition from providing information and emotional support to seeking substantial benefits through commercialization. This study aims to fill this gap by investigating the effectiveness of UGC marketing on the RED platform, with a particular focus on Chinese millennials. Specifically, the research will analyze how content creators and consumers interact, the impact of content commercialization on consumer trust and purchasing decisions, and the overall contribution of UGC to digital well-being and economic growth.

By exploring these aspects, this study not only deepens the understanding of UGC's role in social commerce but also provides valuable insights for marketers seeking to optimize UGC strategies to enhance trust and engagement among Chinese millennial consumers. Additionally, the research will help uncover the potential challenges and opportunities in the commercialization of UGC, offering theoretical and practical references for future marketing strategies and platform development.

2. Literature Review

2.1. Introduction to RED and Social Commerce

In recent years, social commerce platforms have revolutionized the way consumers interact with brands and make purchasing decisions. RED (Little Red Book) has emerged as a leading social commerce platform in China, demonstrating significant growth and adaptability Si [5]. Huang [6] identifies RED as a prime example of a successful transition from a purely social networking platform to a comprehensive e-commerce solution by leveraging community engagement to drive consumption. As the largest social commerce entity in China, RED benefits both users and marketers by fostering robust social interactions, enriching the online shopping experience through active community involvement, and providing a multifaceted social environment [7]. This dual focus not only enhances user engagement but also creates substantial economic value by driving sales and facilitating brand-consumer interactions.

Moreover, RED's emphasis on user-generated content (UGC) contributes to digital wellbeing by fostering a sense of community and belonging among users. The platform's ability to integrate social interactions with commercial transactions supports users' emotional and social needs while simultaneously driving economic growth through increased consumer spending and brand collaborations [8].

2.2. User-Generated Content and Its Impact

User-generated content (UGC) is a cornerstone of RED's social commerce model, encompassing images, text, and short videos often supplemented with thematic tags or shopping links. For active contributors, RED provides a platform not only for interaction with other users but also for establishing themselves as influential figures and collaborating with brands [9]. This dual functionality enhances their social capital and offers monetization opportunities through brand partnerships.

For enterprises, RED's social commerce framework facilitates the collection of valuable user feedback and data, which is instrumental in market analysis and shaping consumer behavior strategies [10]. The authenticity and relatability of UGC serve as powerful tools for building consumer trust and influencing purchasing decisions. Studies have shown that UGC can significantly enhance brand credibility and consumer engagement, leading to increased sales and customer loyalty [11, 12].

Furthermore, UGC plays a critical role in digital wellbeing by enabling users to express themselves creatively and connect with like-minded individuals [13]. This interaction fosters a supportive online community, contributing to users' emotional satisfaction and overall digital experience. However, the commercialization of UGC must be carefully managed to maintain authenticity and prevent information overload, which can negatively impact digital wellbeing.

2.3. Types of Social Commerce Platforms

Social commerce platforms can be broadly categorized into three types based on their core functionalities and integration with e-commerce services, Naeem and Ozuem [14]. Huang and Benyoucef [15] classify social commerce into the following categories: (1) Integrated E-commerce Platforms: These platforms are based on existing e-commerce services that incorporate social functions such as product reviews and user ratings. Examples include Amazon and eBay, where social interactions enhance the traditional online shopping experience. (2) Social Networking-Based Platforms: These platforms originate from social networking sites that have integrated commercial functionalities through targeted advertising and shoppable posts. Facebook and Instagram are prominent examples where businesses leverage social media to reach and engage with consumers directly. (3) Third-Party Social Commerce Applications: Distinct from the above categories, RED operates as a third-party social commerce application on mobile devices. It seamlessly integrates e-commerce functionalities with personalized community services, allowing users to interact freely without the constraints of traditional e-commerce or social media networks. This unique model enables direct product purchases and the generation of diverse content beyond specific e-commerce websites.

Recent studies emphasize the importance of flexibility and user-centric design in third-party social commerce platforms, highlighting how RED's innovative approach facilitates both social interactions and economic transactions, thereby driving sustained growth and user engagement [16, 17].

2.4. User Types on RED

RED caters to two primary user types: content creators and content consumers. Content creators, often referred to as online influencers, utilize RED to share personal experiences, lifestyle tips, and product reviews, thereby influencing the purchasing decisions of their followers [18]. These creators play a vital role in shaping consumer behavior by providing authentic and relatable content that resonates with their audience.

Content consumers, on the other hand, engage with UGC to gather information, seek entertainment, and fulfill social interaction needs [19]. They rely on the insights and reviews provided by content creators to make informed purchasing decisions, enhancing their overall shopping experience on the platform. This dynamic interaction between creators and consumers fosters a vibrant community where trust and authenticity are paramount.

While existing research predominantly focuses on content consumers, there is a growing recognition of the importance of content creators in the social commerce ecosystem. Recent studies have begun to explore the motivations and behaviors of content creators, highlighting their significant impact on both digital wellbeing and economic growth within the platform [20, 21].

2.5. UGC, Digital Wellbeing, and Economic Growth

User-generated content (UGC) plays a pivotal role not only in shaping consumer behavior but also significantly impacts digital wellbeing and economic growth [22]. Digital wellbeing encompasses the effects of digital interactions on users' mental and emotional health, social connections, and overall quality of life. Engaging with UGC can foster a sense of community and belonging, positively influencing users' digital wellbeing by providing emotional support and enhancing social interactions [23]. Conversely, excessive exposure to commercialized UGC may lead to information overload and increased consumerism-related stress, potentially negatively affecting digital wellbeing.

From an economic perspective, UGC-driven platforms stimulate economic growth by driving sales, facilitating brand-consumer interactions, and creating new revenue streams for both brands and influencers [24]. The commercialization of UGC has promoted the rise of influencer marketing, which has become a significant component of modern marketing strategies. Additionally, the data generated from UGC provides valuable insights for market analysis, enabling businesses to more effectively adjust their products and services to meet consumer demands [25].

Despite these significant benefits, the interplay between UGC, digital wellbeing, and economic growth remains underexplored, particularly within the context of Chinese social commerce. This study aims to bridge this gap by examining how UGC on the RED platform influences users' digital wellbeing and contributes to economic growth, thereby providing a comprehensive understanding of UGC's role in modern social commerce.

By exploring these aspects, this study not only deepens the understanding of UGC's role in social commerce but also provides valuable insights for marketers seeking to optimize UGC strategies to enhance trust and engagement among Chinese millennial consumers. Additionally, the research will help uncover the potential challenges and opportunities in the commercialization of UGC, offering theoretical and practical references for future marketing strategies and platform development.

2.6. Theoretical Framework

This study employs Social Support Theory and Uses and Gratifications Theory to examine the motivations behind user-generated content (UGC) creation and consumption on social commerce platforms, as well as their impact on consumer behavior.

Social Support Theory posits that individuals seek social support to fulfill informational, emotional, and tangible needs within a community context [26, 27]. In the realm of social commerce, content creators generate UGC to provide valuable information, seek emotional validation, and obtain tangible benefits such as monetary rewards through brand collaborations [28]. This theory helps in understanding the initial motivations of content creators and how these motivations evolve as their influence grows, leading to the commercialization of their content [29].

Uses and Gratifications Theory focuses on why users actively seek out specific media to satisfy various needs [30]. In the context of social commerce platforms, consumers engage with UGC to obtain reliable product information, seek entertainment, and fulfill social interaction needs [31]. This theory provides insights into the diverse motivations of consumers, highlighting how UGC serves as a tool for information exchange, social interaction, and personal satisfaction [32].

By integrating these two theories, this study aims to explore the dynamic interplay between content creators and consumers on social commerce platforms, investigating how UGC influences purchasing decisions, consumer trust, and overall digital well-being. The theoretical framework thus offers a comprehensive lens to analyze the multifaceted role of UGC in shaping consumer behavior and driving economic growth within the social commerce ecosystem.

3. Methodology

3.1. Research Design

This study employs a mixed-methods approach to comprehensively examine how different user types engage with the RED platform and to assess the effectiveness of user-generated content (UGC) marketing. By integrating both qualitative

and quantitative methodologies, the research aims to provide a nuanced understanding of the motivations and behaviors of content creators and consumers, as well as the factors influencing UGC marketing effectiveness. The qualitative component involves in-depth semi-structured interviews, while the quantitative component consists of an online survey analyzed using the entropy weight method (EWM). This dual approach allows for triangulation of data, enhancing the validity and reliability of the findings.

3.2. Qualitative Data Collection: Semi-Structured Interviews

To explore the motivations and experiences of both content creators and content consumers on RED, semi-structured interviews were conducted. A total of 350 participants were selected, comprising 175 content creators and 175 content consumers. The content creators were recruited through personal contacts and recommendations within Shanghai's advertising industry, ensuring a diverse range of influence and experience levels. The content consumers were recruited in Melbourne, targeting active RED users who spend at least five hours per week on the platform for product information.

The interviews were designed to delve into the unique experiences of each user group. For content creators, the focus was on their motivations for generating UGC, interactions with their audience, and challenges in maintaining authenticity, especially regarding sponsored content. For content consumers, the interviews aimed to uncover their reasons for engaging with UGC, the impact of UGC on their purchasing decisions, and their levels of trust in UGC compared to traditional advertising.

Each interview lasted approximately 30 minutes and was conducted either online via voice chat for content creators or face-to-face in Melbourne for content consumers. The interviews were conducted in Chinese to align with the language of RED's UGC, with transcripts subsequently translated into English for analysis. Participants had the option to remain anonymous, ensuring that ethical standards were maintained.

3.3. Quantitative Data Collection: Questionnaire Survey

Complementing the qualitative interviews, an online questionnaire survey was administered to gather quantitative data from a larger sample of RED users. A total of 350 Chinese millennials aged 22-37 participated in the survey, a demographic highly active on RED [33]. Recruitment was facilitated through social media platforms such as WeChat and Facebook, targeting users who regularly engage with UGC on RED.

The questionnaire included items designed to measure various aspects of UGC consumption and trust levels, employing both descriptive and advanced statistical techniques for analysis. Descriptive statistics (e.g., mean, median, standard deviation) were utilized to summarize the data, while correlation analysis was conducted to examine the relationship between UGC consumption and consumer trust. This approach provides a broad overview of trends and patterns within the sample, supporting the qualitative findings from the interviews.

3.4. Data Analysis: Entropy Weight Method (EWM)

The entropy weight method (EWM) was applied to the quantitative survey data to determine the relative importance of different factors influencing the effectiveness of UGC marketing on RED. EWM is particularly suitable for multi-criteria decision-making systems, as it objectively assigns weights to various evaluation criteria based on the variability of the data.

The EWM process involved the following steps: (1) Standardization of Data: Raw survey data were standardized to ensure comparability across different metrics. (2) Entropy Calculation: The entropy values for each factor were computed to reflect the degree of variability in responses. (3) Weight Determination: Entropy values were used to calculate the weights of each factor, with higher weights assigned to factors exhibiting greater variability and thus having a more significant impact on decision-making. (4) Composite Score Calculation: A composite score for each participant was calculated based on the weighted factors, enabling an overall evaluation of UGC's influence on purchasing behavior.

This method provides a robust framework for assessing the multifaceted impact of UGC on consumer trust and behavior, facilitating a comprehensive analysis of marketing effectiveness on the RED platform.

3.5. Ethical Considerations

The study was conducted in accordance with established ethical guidelines, ensuring the protection of participants' rights and privacy. Ethical approval was obtained, and all participants provided informed consent prior to participation. The Ethics ID number for this study is 1852300.1. Confidentiality was maintained by allowing participants to choose whether to be identified by their real names, pseudonyms, or to remain anonymous. Additionally, participants were given the opportunity to review and approve the transcripts of their interviews, further safeguarding their privacy and ensuring the accuracy of the data.

3.6. Participants

The study comprised two distinct groups of participants: content creators and content consumers. The qualitative phase involved 350 participants, with 175 content consumers and 175 content creators. The content consumers were recruited in Melbourne and were active RED users who dedicated at least five hours per week to seeking product information. The content creators, recruited through Shanghai's advertising industry contacts, varied in their levels of influence and experience.

For the quantitative phase, 350 Chinese millennials aged 22-37 were surveyed through an online questionnaire. This demographic was selected due to their high activity levels on RED, ensuring that the survey results would be representative of the primary user base. Recruitment was conducted via social media platforms, targeting users who frequently engage with UGC on RED to gather comprehensive and relevant data.

3.7. Recruitment Challenges

Recruiting content creators presented significant challenges, including reluctance to discuss sponsored content due to existing commercial contracts and requests for compensation that exceeded the study's budget. To address these challenges, the researcher expanded recruitment efforts by seeking volunteers among influential content creators and leveraging personal networks to ensure a diverse and credible sample. This approach facilitated the inclusion of a varied group of content creators, enhancing the study's overall validity and reliability.

3.8. Interview Design and Process

The semi-structured interviews were meticulously designed to extract detailed and relevant information from participants. Each interview session comprised 11 tailored questions specific to the participant's role—content creator or content consumer. For content creators, questions focused on their experiences with RED, motivations for creating UGC, interactions with audiences, and comparisons with other platforms. For content consumers, questions explored their usage of RED, preferences for UGC, and the impact of UGC on their purchasing decisions.

Interviews commenced with general questions to establish participants' backgrounds and usage patterns, followed by more in-depth inquiries into personal experiences and motivations. The flexibility of semi-structured interviews allowed for the exploration of unexpected themes and provided a rich, detailed understanding of participants' perceptions and interactions with UGC. Each interview lasted approximately 30 minutes and was conducted in the preferred language of the participants to ensure comfort and accuracy in responses.

Transcripts of the interviews were translated into English for analysis, with participants having the opportunity to review and approve their transcripts to ensure fidelity to their original statements. Thematic analysis was then employed to identify and interpret key themes within the data, utilizing an inductive approach to uncover patterns and relationships that contribute to a nuanced understanding of UGC's impact on RED users.

3.9. Justification of Sample Size

The study's sample size is considered sufficient given the exploratory nature of the research and the targeted demographic. The qualitative interviews, though limited in number, provide in-depth insights into the motivations and experiences of content creators and consumers, which are critical for understanding the nuanced dynamics of UGC on RED. The quantitative survey, with a larger sample size, ensures that the findings are generalizable to the broader population of Chinese millennials active on RED, allowing for the identification of significant trends and patterns. This balanced approach between depth and breadth enhances the study's overall robustness and credibility.

3.10. Data Analysis: Thematic and Statistical Approaches

The qualitative data from the semi-structured interviews were analyzed using thematic analysis, focusing on identifying recurring themes and patterns that elucidate the motivations and behaviors of content creators and consumers. This method facilitated the development of a comprehensive understanding of how UGC influences digital wellbeing and economic growth on the RED platform [34].

Simultaneously, the quantitative survey data were subjected to descriptive and correlation analyses, supplemented by the entropy weight method (EWM) to determine the relative importance of various factors influencing UGC marketing effectiveness [35]. This multi-faceted analytical approach ensures that both subjective and objective aspects of UGC's impact are thoroughly examined, providing a holistic view of its role in shaping consumer behavior and driving marketing outcomes on RED.

4. Findings: Interviews with Content Creators

4.1. Motivations for Creating UGC and Social Support Theory

Social support theory posits that content creation is driven by informational, emotional, and tangible support. Interviews with RED content creators reveal that while informational support initially motivates many to create user-generated content (UGC), motivations evolve as their influence grows. Early on, most content creators sought to share helpful information or gain emotional validation. As their follower count increased, some shifted towards commercializing their content to receive tangible benefits such as promotional fees.

In this study, three prominent RED content creators began their UGC journey motivated by information support, focusing on sharing experiences, outfit recommendations, and online store tips. Two sought emotional support, aiming to gain followers and validate their influence. Only one creator started with a focus on tangible support but later, as their follower count grew, their motivation shifted towards monetizing their influence.

Creators motivated by information support emphasized sharing valuable content, such as work experiences or product reviews, and typically viewed themselves as both content creators and consumers. They enjoyed the sharing process and saw it as a way to help others. For instance, one content creator remarked on the joy of sharing useful information and experiences with their followers.

Content creators motivated by emotional support desired recognition and validation. They aimed to attract followers and prove their influence. For these creators, the increased interaction and follower count became a significant motivation to continue producing content.

4.2. Commercialized UGC

Initially, content creators focused on sharing information rejected promotional offers from small companies, fearing it would harm their credibility. However, as their popularity grew, they became open to promotional collaborations, provided the products matched their content style and quality. They preferred partnering with reputable brands and experiencing the products before promotion to ensure authenticity.

Creators who sought tangible support from the beginning leveraged their growing influence to negotiate promotional deals and earn revenue. They engaged in soft-sell advertisements and promotional activities, integrating them into their content in ways that did not detract from their authenticity.

4.3. Transition to Commercialization

As their influence expanded, some creators who started with information or emotional support motivations began to accept promotional requests. They adapted their content to include soft-sell advertisements, often using methods like lotteries or providing links to their e-commerce stores to generate revenue while maintaining a semblance of impartiality. Despite this, they avoided directly labeling content as advertisements, relying on their audience's ability to discern promotional content.

4.4. Motivations for Using UGC

Using Uses and Gratifications Theory (UGT), it was found that content consumers on RED use UGC primarily for information, emotional, and social needs. The main motivation is to obtain high-quality, reliable information about products. Users often browse RED to gather insights and reviews before making purchasing decisions.

Many content consumers use RED to satisfy their need for detailed product information, with reviews spanning beauty, travel, food, and shopping. They rely on UGC to make informed choices and appreciate content that provides comprehensive, firsthand experiences and comparisons.

UGC also fulfills emotional needs by resonating with users' personal experiences or interests. Content designed with engaging visuals and emotive language enhances user satisfaction. For example, users find emotional connection and entertainment in well-crafted UGC, including the use of emoticons and descriptive imagery.

4.5. Social Needs and Interactions

UGC also caters to social needs, both online and offline. Users engage with and appreciate content that aligns with their social interactions, such as discussing recommendations with friends or using UGC as a reference during shopping. UGC has become a topic of conversation and a source of product recommendations in everyday life.

Some users initially browse UGC passively but later start creating their own content, influenced by their interactions with the platform. This shift highlights the platform's role in facilitating both consumption and production of UGC.

4.6. Assessment of UGC Quality

Content consumers value high-quality UGC that includes detailed product information and personal experiences. They prefer content that offers a thorough comparison and practical insights over content from celebrities or influencers, whom they suspect may be promoting products for financial gain.

Consumers trust UGC more than traditional advertisements because it often provides more nuanced and varied perspectives, including both positive and negative reviews. They find UGC's detailed, personal narratives more convincing than the often generic and promotional content found in traditional ads.

4.7. Trust in Information Sources

Participants express greater trust in UGC from ordinary users rather than celebrities, believing that celebrity endorsements may be biased or sponsored. They appreciate UGC for its authenticity and perceived objectivity, especially when it includes detailed personal experiences and critical reviews.

Users also believe they can identify advertising content within UGC, often based on the content's focus and presentation style. They are wary of overt promotional content and prefer UGC that balances product recommendations with genuine user experiences.

In summary, interviews reveal that content creators on RED are initially motivated by a desire to share information or gain emotional support. As their influence grows, they often shift towards seeking tangible benefits through the commercialization of their content. On the other hand, content consumers primarily seek high-quality information, emotional engagement, and social interaction through UGC. They value detailed and authentic content over traditional advertisements and trust UGC from ordinary users more than from celebrities. Overall, UGC on RED provides significant value to both creators and consumers, blending informational, emotional, and social needs in a dynamic and evolving platform.

5. Questionnaire Analysis

5.1. Development of the Indicator Matrix

In this section, we present the initial structure of the evaluation matrix based on the pre-defined criteria. The matrix consists of multiple evaluation dimensions and indicators, which form the foundation for assessing user behavior and perceptions related to UGC. Each indicator is linked to a specific evaluation aspect, as outlined in the matrix below.

$$R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix} (i = 1, 2, \cdots m; j = 1, 2, \cdots, n)$$

5.2. Normalization Process for the Indicator Matrix

To ensure comparability and standardization across different indicators, we apply normalization methods. Indicators are classified into two types: cost-type and benefit-type. Among them, cost-type indicators represent those for which smaller values are more important, while benefit-type indicators represent those for which larger values are more important.

For cost-type indicators, the normalization formula is expressed as:

$$r'_{ij} = \left(\max(r_{ij}) - r_{ij} \right) \big/ \left(\max(r_{ij}) - \min(r_{ij}) \right)$$
as

For benefit-type indicators, the normalization formula is expressed as:

$$r'_{ij} = \left(r_{ij} - \min(r_{ij}) \right) \big/ \left(\max(r_{ij}) - \min(r_{ij}) \right)$$

After standardization processing, the standardized target matrix is formed as follows:

$$R' = \begin{bmatrix} r'_{11} & r'_{12} & \cdots & r'_{1n} \\ r'_{21} & r'_{22} & \cdots & r'_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ r'_{m1} & r'_{m2} & \cdots & r'_{mn} \end{bmatrix} (i = 1, 2, \ldots m; j = 1, 2, \ldots, n)$$

5.3. Entropy Calculation for Each Indicator

Entropy is calculated for each indicator to determine the level of uncertainty or variability within the data. The formula for computing entropy (H) for each indicator is as follows:

$$H_j = -k \times \sum_{i=1}^{m} f_{ij} \ln f_{ij} \left(i = 1, 2, \ldots m; j = 1, 2 \ldots, n \right)$$

$$f_{ij} = \frac{r'_{ij}}{\sum_{i=1}^{m} r'_{ij}}, k = \frac{1}{\ln m}$$

5.4. Determining the Entropy Weights for Indicators

The entropy values obtained in the previous step are used to calculate the weights for each indicator, reflecting its relative importance in the evaluation. Higher entropy indicates more information, which results in a higher weight. The weights for each indicator are determined using the formula:

$$w_j = \frac{1 - H_j}{\sum_{j=1}^{n} \left(1 - H_j \right)} (0 \leq w_j \leq 1, \sum_{j=1}^{n} w_j = 1)$$

Entropy weight W_j can reflect the amount of information contained in different indicators during evaluation, quantitatively reflecting the role of indicators in evaluation.

According to the entropy weight method calculation steps, first calculate the standardized values of user purchase desire evaluation indicators. According to the standardized calculation results and combined with the calculation formula, the weight and entropy values of each indicator are calculated as shown in the following Table 1 :

Table 1.
Weight Table of Entropy Weight Method for User Purchase Desire Evaluation Index

Index	Entropy	Diversity Factor	Weight	Sort
I think User-Generated Content (UGC) is very important when I make purchasing decisions.	0.936	0.064	0.101	5
I tend to rely more on UGC rather than traditional advertising to obtain product information.	0.959	0.041	0.065	6
Content creators' sharing is usually done to help consumers, not just to make money.	0.987	0.013	0.021	10
I believe the initial motivation for content creators when sharing user-generated content (UGC) is primarily to provide information support and emotional satisfaction.	0.907	0.093	0.148	3
I have more confidence in recommending products to ordinary users.	0.834	0.166	0.264	1
I think user-generated content (UGC) from influencers is more credible than celebrity advertisements.	0.902	0.098	0.156	2
I will actively interact with content creators, such as commenting or asking questions.	0.960	0.040	0.063	7
I believe that interacting with content creators has enhanced my trust in user-generated content (UGC).	0.981	0.019	0.031	9
I have noticed that many content creators are starting to collaborate with brands, which has a significant impact on my product selection.	0.927	0.073	0.116	4
I do not think the commercialization of UGC will reduce its credibility, as long as the content remains authentic.	0.978	0.022	0.035	8

5.5. Cloud Model Construction Process

5.5.1. Establish A Standard Evaluation Comment Set

Based on past application experience and settings, divide each level of evaluation into five levels and construct a comment set for the cloud model $U = (u1, u2, u3, u4, u5) = (I, II, III, IV, V)$, and convert the comment set into a standard cloud based on the boundary.

$$\begin{cases} Ex = \dfrac{(U_{max} + U_{min})}{2} \\[2mm] En = \dfrac{(U_{max} - U_{min})}{6} \\[2mm] He = k \end{cases}$$

Among them, Ex is the expected value of the cloud model, reflecting the expectation of cloud droplets; En is the entropy value, which reflects the degree of uncertainty of cloud droplets; He is hyperentropic, used to reflect the uncertainty of the model; K is a constant, usually taken as 0.5.

5.5.2. Calculate The Cloud Digital Characteristics of Each Evaluation Indicator

$$\begin{cases} Ex_i = \dfrac{\sum_{i=1}^{n} X_i}{2} \\[4mm] En_i = \sqrt{\dfrac{\pi}{2}} \dfrac{\sum_{i=1}^{n} |x_i - Ex_i|}{n} \\[4mm] He_i = \sqrt{\left| \dfrac{\sum_{i=1}^{n} (x_i - Ex_i)^2}{n-1} - En_i^2 \right|} \end{cases}$$

5.5.3. Cloud Digital Features for Calculating Dimensional Indicators

$$
\begin{cases}
Ex_v = \dfrac{\sum\limits_{i=1}^{n} \omega_i x_i}{\sum\limits_{i=1}^{n} \omega_i} \\[2em]
En_v = \dfrac{\sum\limits_{i=1}^{n} (\omega_i)^2 En_i}{\sum\limits_{i=1}^{n} (\omega_i)^2} \\[2em]
He_v = \dfrac{\sum\limits_{i=1}^{n} (\omega_i)^2 He_i}{\sum\limits_{i=1}^{n} (\omega_i)^2}
\end{cases}
$$

5.5.4. Calculate Comprehensive Evaluation of Cloud Digital Features

$$
\begin{cases}
Ex = \dfrac{\sum\limits_{i=1}^{n} \omega_i Ex_i En_v}{\sum\limits_{i=1}^{n} \omega_i} \\[2em]
En = \sum\limits_{i=1}^{n} \omega_v\, En_v \\[2em]
He = \dfrac{\sum\limits_{i=1}^{n} (\omega_v)^2 He_v En_v}{\sum\limits_{i=1}^{n} \omega_i\, En_v}
\end{cases}
$$

5.5.5. Generate Evaluation Cloud Map

Using MATLAB software, combine the evaluation cloud map with the standard cloud map, and the area with the highest overlap in the cloud map is the evaluation level. The generation process is as follows:

1) Generate a normal random number Ejn with En as the expected value and He as the standard deviation;
2) Generate a normal random number x with Ex as the expected value and Ejn as the standard deviation;
3) Calculate the membership degree
4) Generate a cloud droplet
Repeat steps 1) - 4) until n cloud droplets are generated.

5.5.6. Establish Evaluation Criteria Cloud

Define the partition area as [0,5] and assign five levels of atmosphere from low to high. The corresponding intervals and numerical features for each level are shown in Table 2.

Table 2.
Table of intervals and numerical features corresponding to the five levels.

Evaluation level	Range	Numerical Characteristics
Poor	[0,1]	[0.5,0.33,0.05]
Below Average	[1,2]	[1.5,0.33,0.05]
Average	[2,3]	[2.5,0.33,0.05]
Above Average	[3,4]	[3.5,0.33,0.05]
Good	[4,5]	[4.5,0.33,0.05]

Import the numerical features of the above comment set into MATLAB 2018b to calculate and generate a standard cloud map.
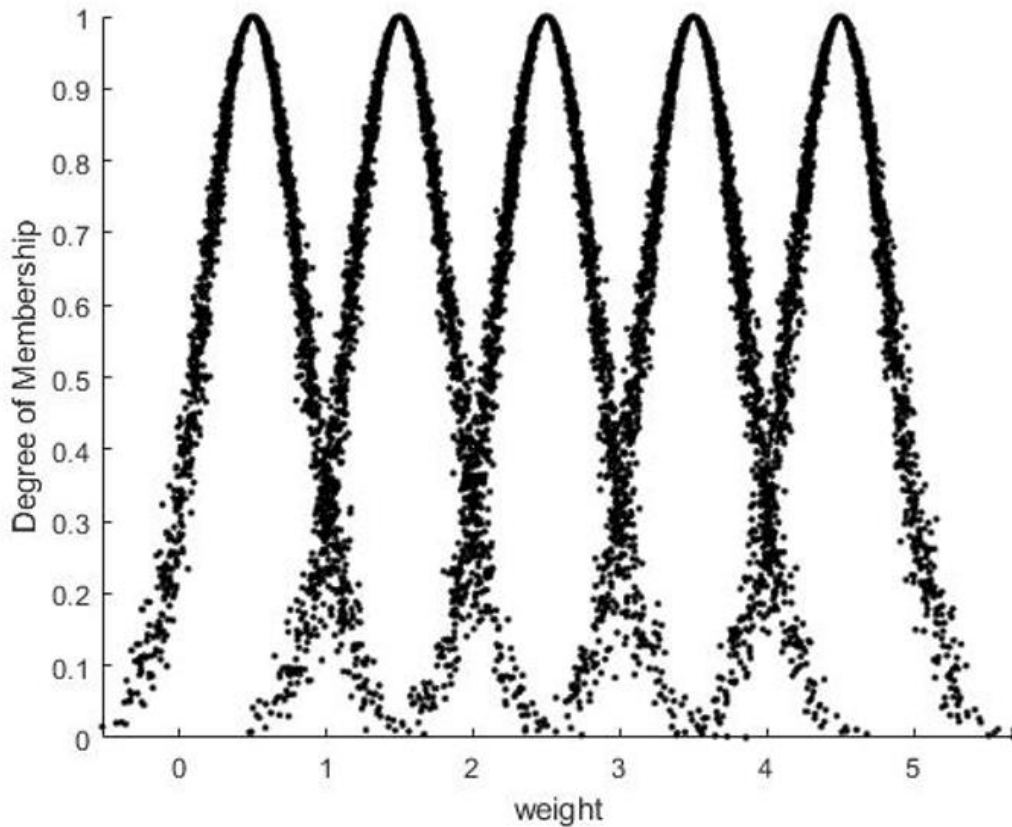

Figure 1.
Standard cloud map.

5.5.7. Determine The Evaluation Cloud Digital Characteristics of Each Layer's Indicators
Calculate the cloud digital features of each evaluation indicator, as shown in Table 3

Table 3.
Table of evaluation Indicator Cloud Digital Eigenvalue.

Index	Ex	En	He
I think User-Generated Content (UGC) is very important when I make purchasing decisions.	0.6545	4.18	0.1023
I tend to rely more on UGC rather than traditional advertising to obtain product information.	0.6641	4.26	0.1455
Content creators' sharing is usually done to help consumers, not just to make money.	0.6366	4.19	0.1538
I believe the initial motivation for content creators when sharing UGC is primarily information support and emotional satisfaction.	0.7775	4.03	0.1197
I have more confidence in recommending products to ordinary users.	0.646	4.41	0.1129
I think user-generated content (UGC) from influencers is more credible than celebrity advertisements.	0.7017	4.05	0.1408
I will actively interact with content creators, such as commenting or asking questions.	1.0049	3.93	0.1859
I believe that interacting with content creators has enhanced my trust in UGC.	0.7376	4.16	0.1263
I have noticed that many content creators are starting to collaborate with brands, which has a significant impact on my product selection.	0.8832	4.21	0.0937
I do not think the commercialization of UGC will reduce its credibility, as long as the content remains authentic.	0.5051	4.36	0.0695

By obtaining the entropy weight method weights, it can be inferred that the numerical features (0.72, 4.19, 0.12) of the project comprehensive cloud model are calculated. These features are then input into MATLAB to generate the project comprehensive cloud evaluation cloud map, as shown in Figure 2.
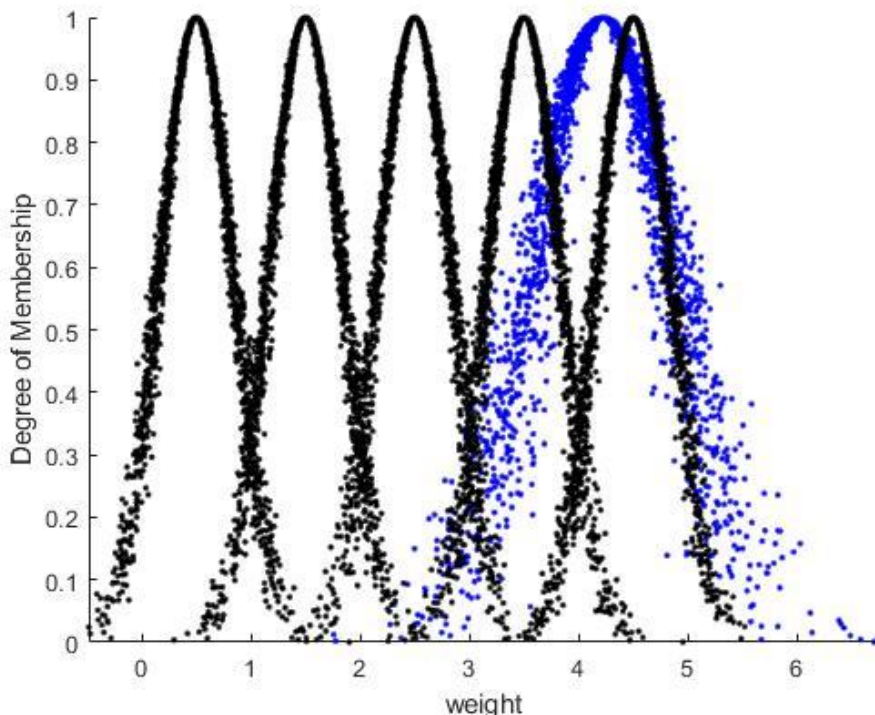
Figure 2.
Comprehensive project cloud map

Table 4.
Table of level and similarity.

Level	I	II	III	IV	V
Similarity	3.36E-06	0.0013	0.0332	0.2951	0.3982

As shown in the figure, the integrated cloud is between VI and V. From the number of cloud droplets, the number of droplets distributed in VI is significantly higher than that in V. By calculating their similarity, it can be concluded that the maximum similarity is at level V, indicating that the integrated cloud belongs to level VI.

6. Discussions

Through qualitative interviews with both content creators and content consumers on the RED platform, this study explored the motivations of content creators in generating user-generated content (UGC), their interactions with content consumers, and how content consumers consume UGC to fulfill their various needs. The findings of this study are expected to provide valuable insights for marketers who consider social commerce platforms as promotional tools.

6.1. Commercialized UGC

The study reveals that content creators are increasingly seeking tangible support, and UGC on RED is gradually becoming commercialized. After gaining influence and attention in the user community by posting UGC, content creators, who initially aimed to provide unpaid informational support, started receiving partnership invitations from brands. Faced with commercial invitations to publish promotional UGC, some content creators shifted their motivations and began seeking tangible support. This shift in motivation means that the UGC created by these participants, as well as their interactions with consumers, are no longer solely informational but are now designed to generate greater economic benefits. Even if some content creators rejected these partnership requests, they did not rule out the possibility of future cooperation. Therefore, it has become a common phenomenon on RED for UGC to blend unpaid product reviews with commercial content, reflecting the commercialization trend of UGC. The commercialization of UGC emerges from content creators' pursuit of economic rewards. With the increasing use of RED, content creators have gained the attention of numerous brands. After accumulating a certain level of influence, content creators have opportunities to receive economic rewards. Whether accepting commercial cooperation invitations or rejecting them with the possibility of future collaboration, content creators do not oppose pursuing their own interests through advertising services.

6.2. Higher Interaction, Higher Credibility

For content consumers, the study shows that participants expressed higher levels of trust in UGC published by ordinary users or influencers rather than celebrities. Participants believed that celebrities were unlikely to purchase inexpensive or unpopular products, so celebrity recommendations were often seen as low-value advertisements. As a result, when searching

for product reviews, consumers found UGC published by ordinary users and influencers to be more credible than that from celebrities.

Interaction is a key factor in determining the higher credibility and trust of UGC published by ordinary users or influencers. Compared to celebrities, ordinary users and influencers interact more frequently and actively within the community. When browsing product reviews, consumers often inquire about more product details through private messages or comments. The content creators in this study identified themselves as talkative and active individuals, so they were generally willing to respond to consumer questions, thus further meeting consumers' informational needs. As a result, content consumers tend to find UGC published by influencers more credible for product evaluations.

This argument is supported by Social Support Theory and Uses and Gratifications Theory, as interactions on social platforms can significantly influence consumer purchasing behavior. Through interaction with content creators, consumers can obtain more specific information to meet their informational needs, which in turn affects their purchasing decisions. Overall, from the perspective of content consumers, the interactions between consumers and content creators help improve information quality, thereby affecting purchase intentions, making UGC published by ordinary users and influencers more trustworthy than that published by celebrities.

6.3. Effective UGC

This study highlights the impact of high-quality user-generated content (UGC) on consumers' purchasing decisions. Content consumers consider high-quality UGC to include detailed product descriptions, personal experiences, and comprehensive analyses, often accompanied by images and even product defects. Negative word-of-mouth in UGC can deter purchases, reflecting the significant influence of UGC on shopping behavior.

High-quality UGC is more comprehensive than traditional advertising, showcasing both positive and negative aspects of products. Participants trust the detailed and authentic experiences shared by other users more than traditional media advertisements that focus solely on brand promotion. This comprehensive product perspective enhances consumer trust and encourages more informed purchasing decisions.

This finding aligns with the information quality aspect of Uses and Gratifications Theory (UGT), where consumers use social platforms to seek high-quality product information. High-quality user-generated content (UGC) reduces consumer purchase anxiety by providing genuine reviews, thus enhancing trust in both the product and the platform.

6.4. Practical Implications

This study provides practical insights for marketing strategies and online e-commerce, particularly regarding UGC on RED. UGC offers marketers innovative ideas, as users often highlight product features not covered in official advertisements, thus increasing consumer interest. As a new form of electronic word-of-mouth, UGC influences purchasing decisions. Influencers are considered more trustworthy than celebrities and play a crucial role in marketing communications, especially among younger consumers. However, UGC also has its drawbacks, as negative reviews may deter potential buyers and affect product sales.

In the context of online e-commerce, high-quality UGC effectively stimulates shopping desire on platforms like RED through product-related content. RED links UGC closely with e-commerce, enabling users to quickly purchase recommended products. Consumers are motivated by competitive pricing, convenience, and trust in the platform, particularly when bolstered by high-profile endorsements, such as Premier Li Keqiang's visit to RED's bonded warehouse, which increases platform credibility. However, some users remain skeptical about the authenticity of products, particularly in China, where concerns about counterfeit goods remain prevalent. Additionally, many users prefer established purchasing channels or choose to shop overseas, limiting their use of RED's e-commerce features.

In summary, this study fills the gap in research on the impact of UGC commercialization on its effectiveness and the dynamic relationships between content creators and consumers, particularly in the context of Chinese social commerce platforms like RED. By analyzing the interactions between content creators and consumers and the effects of UGC commercialization on consumer trust and purchasing decisions, this study contributes to a deeper understanding of the commercialization of UGC.

7. Conclusion

This study provides a comprehensive examination of the impact of user-generated content (UGC) on RED, China's foremost social commerce platform, with a particular emphasis on millennial content creators and consumers. The research reveals that content creators on RED transition from initially offering informational and emotional support to increasingly seeking financial rewards, a shift that underscores the ongoing commercialization of UGC. This commercialization not only facilitates individual economic gains for creators but also significantly enhances product visibility, thereby contributing to the overall economic growth of the RED platform.

For consumers, UGC on RED is perceived as more authentic and relatable compared to traditional advertising methods. This heightened trust in UGC leads to more informed and confident purchasing decisions, as consumers rely on the genuine experiences and detailed product reviews shared by their peers. Furthermore, UGC fosters a sense of community and promotes digital well-being by facilitating meaningful social interactions and personal fulfillment among users. The study highlights the effectiveness of soft-sell advertising through UGC, where authentic user experiences are seamlessly integrated with promotional content, creating a persuasive and trustworthy marketing environment.

The findings of this research hold significant theoretical and practical implications. Theoretically, the study advances the understanding of UGC commercialization within the context of Chinese social commerce, offering valuable insights into

the evolving motivations of content creators and the resultant effects on consumer behavior. Practically, the research provides actionable recommendations for marketers aiming to optimize their UGC strategies on platforms like RED. Emphasizing the importance of authenticity and fostering meaningful interactions can enhance consumer trust and engagement, thereby driving sustained growth and brand loyalty.

However, the study acknowledges certain limitations, notably its focus on female users under the age of 30, which may affect the generalizability of the findings. Future research should strive to include a more diverse demographic to ensure broader applicability of the results. Additionally, exploring the influence of cultural factors on the effectiveness of UGC and examining the long-term impacts of UGC commercialization on both consumer trust and platform sustainability are essential for a more holistic understanding of the dynamics at play. Investigating the role of emerging technologies, such as artificial intelligence in content creation and personalization, could also offer new avenues for enhancing UGC marketing strategies.

In conclusion, this study underscores the significant social and economic impact of UGC on RED, highlighting its potential to shape future digital marketing and e-commerce strategies. By elucidating the motivations and behaviors of both content creators and consumers, the research provides a nuanced understanding of how UGC can be leveraged to build trust, foster engagement, and drive sustained growth within the social commerce ecosystem. These insights not only contribute to academic discourse but also offer practical guidance for marketers seeking to harness the full potential of UGC in an increasingly competitive digital landscape.

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