Research on the Influence of the Formal Characteristics of E-WOM on Consumers' Purchase Intention

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Abstract. E-WOM has an increasingly important influence on consumers. Previous researches mostly focused on the influence of e-WOM information on consumers' affection and behavioral intention. From the perspective of formal characteristics of e-WOM, we establish an emotional path that influences consumers' willingness to behave. Through the data analysis by smart PLS3.0, the influence of the visibility and interactivity of e-WOM on consumer's emotional experience and purchase intention was verified, and the marketing management inspiration was finally obtained.

1. Introduction
The popularity of the internet has enabled the development of e-commerce. China has become one of the world's largest online retail markets. On August 30, 2019, CNNIC released the 44th Statistical Report on the Development of China's Internet in Beijing. The number of mobile internet users in China has reached 847 million. The huge influence of online shopping on personal consumption patterns and the entire retail industry cannot be ignored. Therefore, researching consumer e-commerce behavior, constructing a good consumption environment, promoting online consumption, and guiding the rapid development of the online economy have become important parts of concern to everyone.

Compared with text and pictures, mobile short videos are more contagious on information expression. In view of the impact of short videos on decision-making processes, major shopping platforms have gradually introduced mobile short video review functions. Video reviews give a higher-end way to express perception of product and bring a richer sensory experience to consumers. Although scholars have made significant progress in researching the characteristics of e-WOM information, research on the effects of the characteristics of e-WOM forms on consumers' willingness is very rare. The research on characteristics of e-WOM on consumers' intention still lacks theoretical theories.

2. Literature reviews
Communicators present product-related information to consumers through media tools such as text, pictures, videos, etc. Information visualization is to use computers to interactively visualize abstract data to enhance people's understanding of abstract information[1]. The higher richness of the media, the
more effectively the information can be passed on to consumers, and consumers therefore have a better experience. Someone divided e-WOM into three different formats according to media richness, including numbers, texts, and pictures, and verified the important influence of visual e-WOM on user perception and decision-making[2]. The "visual rendering effect" promotes simulated interaction between consumers and products, increasing purchase intention[3]. Therefore, we draw on the concept of information visualization. The visibility of e-WOM is the way that consumers can feel the media to deliver e-WOM information to consumers during online shopping process.

One of the criteria for media richness theory is the ability to feedback information. Through communication tools provided by e-commerce platforms, human to human information interaction is achieved to complete product potential consumer interactions[4]. The communication between publishers and consumers of e-WOM and timely feedback on product will cause consumers to imagine their simulated experience of the product. It can be seen that the interactivity of e-WOM information presentation has played an important role in generating consumer experience[5]. The greater the collection and reposting of book reviews, the more consumers will be attracted, which will have a stronger impact on consumers' willingness to purchase books[6]. Consumers can communicate with publishers in a timely manner through media tools, which greatly increases the frequency of information feedback, through media tools to strengthen interaction with consumers. Therefore, interactivity is another important feature in the form of e-WOM information. The interactivity of e-WOM information is the degree to which consumers can perceive through the media and the information publishers.

To sum up, previous studies on the form of e-WOM are mostly based on different forms such as text, pictures, or videos, and explore the differences in impact on consumers. We present the impact on consumers through reference information. Based on the viewpoint of media richness theory, quantifies the formal characteristics of e-WOM, and summarizes into two characteristics: visibility and interactivity. It is believed that the visibility and interactivity of e-WOM promote consumer emotions. Experience has a positive impact on consumers' willingness.

3. Hypotheses and models
Visibility refers to the way in which the senses can perceive the media to convey information to consumers. The richness of the media determines the depth and breadth of individual sensory perception information. The flexible presentation of information through text, pictures, videos and other media to provide consumers with detailed product or service information will make consumers feel in contact with people[7]. The research on the influence of online merchant information presentation on consumers' purchase intention that the social presence caused by the information presentation form will further promote the consumer's sense of pleasure, and then promote the consumer's purchase intention [8]. The atmosphere cues have a positive impact on happiness and arousal. Social media with image interaction technology has a strong positive effect on emotional experience, and human factors such as graphics have a positive effect on the emotions of pleasure and arousal[9]. These inconsistent results led us to reconsider the relationship between the richness of information presentation and emotional state. Therefore, we propose:

H1a: The visibility of e-WOM has a positive impact on consumers’ pleasure.
H1b: The visibility of e-WOM has a positive impact on consumers’ arousal.

Interactivity refers to the degree to which consumers can perceive and interact with other online information through the media. Without personal motivation to participate in interactive media, one cannot experience a sense of interaction. Despite highly advanced technologies that create high levels of interactivity, users may not experience interactivity without motivation to participate[10]. Therefore, by creating a technically effective delivery process in a manner that is easy to enhance the user's subjective participation decision, the user's perception of interactivity is most effectively generated. People who experience more interactive features when playing video games tend to feel greater enjoyment[11].
It has been found that interactive technologies that present more vivid product visualizations are associated with more positive emotional experiences. For example, when using IT technology features for delivery, it stimulates consumers' mental games and fantasies. Various media functions can enrich consumers' imagination building process in various ways. Therefore, it allows consumers to explore new facts, like the adventures of real products, to varying degrees through the unfettered experience of their actual environment. This in turn leads to fun and enjoyment at all levels of positive emotional assessment \(^{(12)}\) Therefore, we propose:

H2a: The interactivity of e-WOM has a positive impact on consumers' pleasure.

H2b: The interactivity of e-WOM has a positive impact on consumers' arousal.

With regard to previous empirical studies on the relationship between emotional states and behavior, positive emotions lead to the search for more behavior and more experiments, happiness, and arousal. All have a positive impact on shopping behavior, such as browsing, unscheduled purchases, and seeking more exciting products. Both happiness and arousal have a strong positive impact on satisfaction and behavior. Therefore, we propose:

H3: Pleasure has a positive impact on purchase intention.

H4: Arousal has a positive impact on purchase intention.

It has been found in previous research that different responses may occur. Researchers widely believe that consumer-related factors, such as consumer awareness and participation, play a significant role in the impact of e-WOM. When browsing information on social media, for recipients with a high degree of involvement, they mainly make decisions based on the content of the information, and the impact of the formal characteristics of the information presented on them will weaken. Therefore, we propose:

H5: When recipients with a low degree of involvement, the formal characteristics of e-WOM have a more significant impact on the emotional experience of consumers.

![Research model](image)

**Figure 1. Research model**

### 4. Experiment process and data analysis

We used questionnaire survey, and finally collected 450 valid questionnaires. All variables were tested using the Likert seven-level scale. The measurement items were derived from the existing literature. The following is a statistical table about the information of the survey respondents.

| Characteristic variable | Number of features | Number | Proportion |
|-------------------------|--------------------|--------|------------|
| Gender                  |                    |        |            |
| male                    | 182                | 40.44% |            |
| Female                  | 268                | 59.56% |            |
| Age                     |                    |        |            |
| Under 18 years old      | 26                 | 5.78%  |            |
| 18-25 years old         | 371                | 82.44% |            |
| 25 years old or older   | 53                 | 11.78% |            |
| Education level         |                    |        |            |
| Specialist              | 6                  | 1.33%  |            |
| Bachelor                | 372                | 82.67% |            |
| Master degree and above | 72                 | 16%    |            |
| Total                   | 450                | 100%   |            |
Then we use SmartPLS3.0 to analyze the data. The Cronbachs Alpha (CA) of each construct is greater than the recommended threshold of 0.7, indicating a higher measurement reliability; Both exceed 0.7, and the average variance extraction (AVE) is greater than 0.5, which indicates that the consistency between the measured items is good.

Table 2: Reliability indicator values.

| Variable      | Mean (Variance) | CA   | CR   | AVE   |
|---------------|-----------------|------|------|-------|
| Visibility    | 4.774(1.533)    | 0.835| 0.890| 0.669 |
| Interactivity | 4.911(1.566)    | 0.814| 0.877| 0.642 |
| Pleasure      | 4.649(1.585)    | 0.840| 0.893| 0.677 |
| Arousal       | 4.624(1.404)    | 0.779| 0.872| 0.694 |
| Purchase Intention | 4.730(1.712) | 0.855| 0.910| 0.772 |
| Involvement   | 5.049(1.299)    | 0.828| 0.896| 0.741 |

We analyze the correlation coefficients and factor loads between variables. As shown in the table, the correlation matrix between the variables shows that the correlation coefficients between the variables are smaller than the arithmetic square root of the average variance of each variable on the diagonal, the factor load of each variable is greater than its factor load value of other variables, which further shows that there is a good convergence validity between the constructs.

Table 3: Validity Index Values.

| Variable      | Measurement Item | Mean (Variance) | Factor Load |
|---------------|------------------|-----------------|-------------|
| Visibility    | V1               | 4.656 (1.225)   | 0.837       |
|               | V2               | 4.813 (1.143)   | 0.786       |
|               | V3               | 4.620 (1.279)   | 0.818       |
|               | V4               | 5.007 (1.294)   | 0.828       |
| Interactivity | I1               | 4.731 (1.281)   | 0.789       |
|               | I2               | 4.811 (1.317)   | 0.851       |
|               | I3               | 5.193 (1.147)   | 0.761       |
|               | I4               | 4.909 (1.248)   | 0.800       |
| Pleasure      | P1               | 4.649 (1.265)   | 0.844       |
|               | P2               | 4.704 (1.231)   | 0.807       |
|               | P3               | 4.682 (1.266)   | 0.865       |
|               | P4               | 4.560 (1.267)   | 0.771       |
| Arousal       | AR1              | 4.511 (1.208)   | 0.818       |
|               | AR2              | 4.718 (1.113)   | 0.828       |
|               | AR3              | 4.644 (1.227)   | 0.853       |
| Purchase Intention | PI1        | 4.724 (1.305)   | 0.897       |
|               | PI2              | 4.733 (1.291)   | 0.879       |
|               | PI3              | 4.731 (1.325)   | 0.860       |
| Involvement   | IV1              | 5.096 (1.126)   | 0.882       |
|               | IV2              | 4.949 (1.085)   | 0.840       |
|               | IV3              | 5.102 (1.201)   | 0.861       |

In the correlation matrix, the diagonal is the square root of AVE, and below the diagonal is the correlation coefficient between the latent variables. The calculation results are shown in the following table. The square root of AVE is greater than the correlation coefficient value of the column, that is, the measurement content has good discriminant validity, as shown in the table.
Table 4: Correlation Matrix

| Variable         | Visibility | Interactivity | Pleasure  | Arousal | Purchase Intention | Involvement |
|------------------|------------|---------------|-----------|---------|--------------------|-------------|
| Visibility       | 0.818      |               |           |         |                    |             |
| Interactivity    | 0.339      | 0.801         |           |         |                    |             |
| Pleasure         | 0.486      | 0.243         | 0.823     |         |                    |             |
| Arousal          | 0.494      | 0.514         | 0.486     | 0.833   |                    |             |
| Purchase Intention | 0.539   | 0.397         | 0.467     | 0.611   | 0.879              |             |
| Involvement      | 0.197      | 0.261         | 0.257     | 0.188   | 0.179              | 0.861       |

According to the analysis standard in general research, the determination coefficient of endogenous latent variable is an important indicator for measuring the degree of correlation of structural equations. It is a value between 0 and 1. The quality judgment basis of the endogenous latent variables of the model is obtained as shown in the table, which proves that the influence of e-WOM characteristics on user experience has a better model interpretation ability and a higher degree of good fitting.

Table 5: Analysis of model fitting degree

| Variable   | R Square | R Adjusted |
|------------|----------|------------|
| Pleasure   | 0.320    | 0.313      |
| Arousal    | 0.399    | 0.392      |
| Purchase Intention | 0.411 | 0.408 |

The path coefficient between latent variables reflects the magnitude of the effect that one latent variable directly affects another latent variable. The T statistic values of the path parameters of the external model and the internal model based on Bootstrapping calculation are shown in the table. The T test is performed at a 5% confidence level. The following table shows the results of the path coefficient and T value test of this study. Except that H2a and H5c are not true, other hypotheses have been verified by empirical results.

Table 6: Path coefficient and T test table

| Hypothesis             | Path factor | T-Value | P-Value | Conclusion |
|------------------------|-------------|---------|---------|------------|
| Visibility→Pleasure    | 0.405       | 8.714   | P<0.001 | √          |
| Visibility→Arousal     | 0.327       | 7.481   | P<0.001 | √          |
| Interactivity→Pleasure | 0.006       | 0.103   | P>0.05  | ×          |
| Interactivity→Arousal  | 0.380       | 7.898   | P<0.001 | √          |
| Pleasure→Purchase Intention | 0.222 | 4.449   | P<0.001 | √          |
| Arousal→Purchase Intention | 0.503   | 10.097  | P<0.001 | √          |
| Moderation Effect      |             |         |         |            |
| Visibility→Pleasure    | -0.104      | 2.258   | P<0.05  | √          |
| Visibility→Arousal     | -0.099      | 2.472   | P<0.05  | √          |
| Interactivity→Pleasure | 0.014       | 0.382   | P>0.05  | ×          |
| Interactivity→Arousal  | -0.104      | 2.847   | P<0.01  | √          |

5. Conclusion and enlightenment

It is concluded that the visibility of e-WOM has an impact on pleasure and arousal, and the interactivity of e-WOM does not have a significant effect on consumer pleasure, and has a significant effect on arousal. Arousal and pleasure will have a positive impact on consumers' willingness to buy; the level of involvement negatively regulates the impact of e-WOM visibility on emotional experience,
and negatively regulates the impact of e-WOM interaction on arousal, there is no significant regulating effect on the influence of e-WOM interactivity on the sense of pleasure.

Marketers need to ensure the richness of e-WOM forms. Merchants use certain incentives to reward publishers for the goodness of products, timely and efficient response speed, and the quality of accurate and targeted answers. These can to a certain extent. Relieve users' negative cognition when they see negative reviews. At the same time, businesses can encourage users to provide more interpretive evaluation information (such as detailed descriptions, feedback videos, etc.), these strategies may have a reputation on the online marketing audiences are more persuasive.

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