The Impact of "Pleasant" Emotional Texts on the Trust Perception of E-commerce Users

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Abstract. Exploring the multi-dimensional evaluation of ' implicit conformity ' and ' explicit persuasion ' in the pleasing text map and the perceived impact of comment trust will help to strengthen the positive effect and persuasion effect of online comments on ecommerce user messages. It is of great significance to reduce consumers ' purchase risk caused by information dislocation. With the help of multi-dimensional sentiment dictionary and language processing technology, explicit and implicit pleasing words are constructed. Taking the initial comment record of Amazon shopping platform as the source of comment words, the pleasing words are extracted, the pleasing types are divided, and the pleasing values are calculated to generate a pleasing text map of multidimensional evaluation. Through measurement and analysis, it is found that there is a positive relationship between the cuddly emotional text map and the perception of trust. The order of the perceived effect intensity of the overall trust is : non-cuddly text map > implicit conformity text map > explicit persuasion text map; and the appearance and price of the product play a regulatory role in trust perception. In the use of feedback comments, as the pleasing emotion increases, the trust perception decreases, and the persuasion effect will weaken.

Keywords: "Pleasant" emotional texts; trust perception; shopping platforms

1 Introduction

The textual ingratiating discourse form is frequently employed in chat rooms, product reviews, and video pop-ups, among other places. The ingratiating reviews highlight positive and positive emotional functions, which are based on the modal effect of discourse ^[1], expressing emotions with tone words, emoticons and other ^[2] communication patterns, typically with phonetic similarity, harmonic deformation, and animal metaphors .It frequently exhibits traits like "ha, what, oh" at the end of a sentence, which exhibits subjective affective dominance, the addition of intonational auxiliaries, and positive emotional tendencies. It also frequently exhibits traits like phonetic similarity, harmonic distortion, animal mimicry, suffix superimposition, and harmonic distortion.

This ingratiating effect is also present in e-commerce shopping reviews, which can close the psychological distance between consumers' acceptance of product information and help create strong emotional resonance and recognition between viewers and potential purchasers ^[3], with 93% of consumers preferring product reviews to assess purchase intentions ^[4]. Existing studies focus on the causal relationship between user reviews and final behaviour, e.g. Sen ^[5] found

that positive affective tendencies have a greater impact on review usefulness, J. Ahrens et al ^[6]. empirically demonstrated that the more falsified positive reviews, the lower the user's perceived usefulness, and Leon Lee ^[7] explained the high impact of negative reviews on purchase intentions.

However, these usefulness factor reviews ignore the visual perception of review information, which is a new form of communication to compensate for the lack of trust in online product purchase platforms, especially the textual ingratiating phenomenon to guide emotional tendencies, whose degree of tone and graphic differences can bring about asymmetry in information understanding.

2 Theoretical Foundations and Research Hypotheses

2.1 Theoretical Foundations

According to Social Attention Theory ^[8]and Emotional Transfer Theory ^[9] people with varied levels of positive emotional inclinations have different affects on how information is "complied with"and"limited." Overly happy or "ingratiating" feelings have been linked to poor outcomes, according to some researchers^[10]. This study will generate ingratiating text figures based on the explicit and invisible features of textual ingratiation using a lexicon of emotions and language processing techniques in order to examine the perceived usefulness of ingratiating and non-ingratiating reviews in the context of persuasion and submissive. Input for theoretical studies on regulating users' inclination to accept information and improve the usefulness and credibility of text-graphic reviews is provided by the experimental method and results, which also assist e-commerce online purchasing platforms.

2.2 Research Hypothesis

The intention of customers to shop online can be significantly influenced by emotions. Textual appeasement in product reviews serves as emotional compensation for the information's perceived value in the consumer's decision-making process, and appeasing textual figures are categorized as implicitly submissive and actively persuasive. Due to the non-linear link between positive emotive impulses and the value of reviews^[11],excessive pandering and 'ingratiating' may have the unintended consequence of making consumers doubt the value of information:

H1:Explicit Persuasive Text Figures are positively correlated with consumer perceived usefulness.

H2:implicit submissive text figures are positively correlated with consumer perceived usefulness.

H3:Consumers' perceived impact on the usefulness of explicit persuasive text is reduced relatively to non-ingratiating text figure.

H4:Consumers' perceived impact on the usefulness of implicit submissive text is increased relatively to non-ingratiating text figure.

In summary, the model for this study is shown in Figure 1.



Fig. 1. Architecture of a typical wireless sensor node.

3 Study Design

In this paper, two types of explicit and invisible ingratiation are used together with false reviews to construct a sample of research variables for a questionnaire measure of perceived usefulness. This is done by using a web crawler to collect reviews with positive statements on the Amazon online shopping platform, combining natural language processing techniques to extract high and low positive ingratiating words, calculating the sentiment score values of ingratiating words based on lexical sentiment analysis, building a sample of three dimensions according to the ingratiating score selection criteria, and finally mediating the perceived usefulness dimension of non-ingratiating reviews compared to ingratiating reviews to carry out a questionnaire for the measurement of reviews experiment.

3.1 Ventoux Ingratiating and Ingratiating Value Division

Textual explicit and implicit ingratiation. There is a distinction between ideograms and semantics, and explicitly ingratiating words refer to tone words that are highly emotionally oriented, with positive emotions and representations. Sentence-ending tone auxiliaries such as "well" and "ha" are used to emphasize empathy and emotional identification ^[12], to subjectively reinforce consensus, and to enhance the effectiveness of persuasive behaviour in communicative intent. In the process of verbal communication, explicit and implicit are only relative, and the implicit submissive of "textual ingratiating" is covert and collective in nature, and it uses the submissive effect of tone auxiliaries to gain a sense of security and identity, with implicit changes in tone in different contexts.

In communication theory, speech consists of three elements: subject, context and discourse; the subject of explicit persuasive text is the persuasive reviews issued by the explicit role in the purchase object, while the subject of invisible submissive refers to the communicative reviews imitated by the latent role in the purchase object; the context of ingratiating text is consistently positive, except that in the explicit and invisible perspectives, the purchase object will produce high or low positive responses to different product evaluation dimensions. For example, in the case of reviews of product appearance, the two levels of ingratiating text are "it works" and "it's so nice", with the former reflecting low positive consumer sentiment; or the use of a combination of styles and tones, such as the "roar" in "roar look at na" and the superimposition of the "na" intonation reflect the high positive emotion of the feedback from both ideographic and semantic points of view; The ingratiating text is an informal discourse that expresses high positive emotions more directly than the implicit text. As the surprise of

product quality in the comments : ' super quality ' and ' decisive recommendation ' are compared, the former can stimulate the persuasive effect of positive emotions, and the latter can cause the lag of positive emotions, as shown in Figure 2 below. Therefore, this paper studies the difference of product trust perception in different comment dimensions with explicit and implicit pleasing degrees.

	userld	productId	rating	timestamp	title	comment
4287636	230944.0	394505	5.0	1393084800	赞!	NaN
3940838	16628.0	84789	5.0	1389715200	喜欢	NaN
4064284	325829.0	94108	3.0	1384531200	磨脚	右脚小脚趾磨掉一块皮
4802616	586385.0	254002	5.0	1383408000	哦~	NaN
292946	842028.0	231449	5.0	1369324800	致我们终将逝去的青春	NaN
2306551	933226.0	219015	4.0	1341763200	有点答不过很漂亮	外观很精致的说 就说外形有点偏大
1707442	402851.0	228321	5.0	1374076800	给宝宝讲讲挺好的,内容 简单,便于宝宝理解。	给宝宝讲讲挺好的,内容简单,便于宝宝理解。
3641724	123473.0	515623	4.0	1305475200	书很好,但居然没有包 装!?!?!?	书很好,书很好,但居然没有包装!?!?!? 这么好的 书却没有包装!?!?!?
1921912	435946.0	63238	4.0	1357228800	嗯	NaN
1475151	1612.0	139044	4.0	1316102400	一般	香味没有前面评价那么香,就说简单普通的爽肤水,有点 黏黏的

Fig. 2. Examples of comments (from Amazon China website)

Multidimensional Sentiment Semantic Analysis. In this paper, based on the semantic analysis of multidimensional sentiment lexicon, 7.2 million reviews from the website of Amazon China (www.amazon.cn) were used as the initial review data, deactivated words were added to the review data discourse, and positive sentiment scores and lexical annotation were applied to the reviews with the help of Natural Language Processing (NLP) word separation tools. At the same time, named words in the review data with different rating levels are identified and counted to construct ingratiating words, tone words and phrases, and to classify the sentiment scores of two degrees of ingratiating. This sentiment analysis method based on online reviews ^[13] can obtain more comprehensive lexical features, which in turn improves the accuracy and reliability of data analysis. Due to the informal discourse characteristics of ingratiating texts, this paper divides the obtained ingratiating word scores into intervals of 1 based on ingratiating sentiment levelness and ingratiating sentiment intensity, and the ingratiating sentiment level values can be accumulated. In order to follow up on the evaluation dimension of the perceived usefulness of the ingratiating text figures, examples of text figures with different evaluation dimensions were also crawled, among which the examples of the use of ingratiating words and tone words superimposed on the reviews that received a high rating are shown in Table 1 below.

Table 1. Ingratiation words on the reviews and ingratiating scores.

Flattering Words	Inflections	Example of Ingratiating	Ingratiating Averages
Must	Wow	Wow.Must be a handful	
Superb	Da	Superb texture	
Keep	La	I will keep buying it again and again.	5
Recommend	Yo	I would recommend to my friends to buy it.	
Fantastic	Bar	The packaging is fantastic.	
So	Well	It's all so expensive!	
Love	Oh	Oh.I love this colour	
As expected	Ah	Ah!It's true that you get what you pay for	4
Available	На	Shipping available	
After all	Nah	It's a big brand after all	

3.2 Reviewary on Dimensional Construction

Extracting dimensions based on literature research. Under the role of textual feature recognition, usefulness reviews that consumers focus on include product appearance, service and utility, which reflect the evaluation of product features^[14] whether they meet consumers' preferences and needs, while users are also prone to perceive functional value and switching costs ^[15]. In addition, it has been found that for experiential products consumers are influenced by negative reviews of the quality of the goods and that there is a moderating effect of brand identity and type of goods on perceived usefulness ^[16]. In order to effectively tap into consumers' willingness to continue adoption to reinforce purchase behaviour, it is important to consider not only objective product quality and service, but also subjective user perceptions of use.

Extracting dimensions based on review mining. Through Python language processing and analysis of ingratiating text and figure review data, 410,000 five-star reviews from the initial review data were cleaned, based on the constructed ingratiating words and phrases, the content of the review phrases were mainly counted and analyzed, and after setting the review length for data cleaning and manual filtering, 422 target review phrases were finally obtained, and the most frequently occurring keywords from the reviews were reviewed dimensional categorization, as is shown in Table 2.

Table 2. Examples of keywords.

Key Words	Word Frequency	Preliminary Categorisation
feelings, problems, time, experience, impact,	295	U D
handling	295	Use Response

quality, results, products, content, plastics, works	134	Product Quality
packaging, cover, figure, style, look, design	175	Product Appearance
price, value, cost, original price, bargain, differential price	53	Product Prices

The data screening revealed that users mainly used textual ingratiating features in four categories of dimensions: product experience, product appearance, quality and price. The experimental sample will refine the questionnaire based on the matching of keywords and review content, combined with these four categories of evaluation dimensions, to determine the final perceived usefulness measurement scale.

3.3 Experimental Samples

Based on the target reviews above, this study used NLP in combination with ingratiating words to rearrange the three groups of reviews to form a sample of non-ingratiating, implicitly submissive and explicitly persuasive reviews, and the reviews were targeted at four types of evaluation dimensions, namely product appearance, product quality, product price and response to use. In order to differentiate the samples, the number of ingratiating words in the non-ingratiating type of reviews was zero, the number of ingratiating words with low positive emotions in the implicitly submissive type of reviews was controlled at 4, e.g. "really", and the number of ingratiating words with high positive emotions in the explicitly persuasive type of reviews was above 5, e.g. "awesome". ", while adding ingratiating words such as "it", "yo", etc. The three groups of samples were ranked according to the intensity of ingratiating emotions. In order to ensure the accuracy of the later empirical results, five more members with rich experience in online shopping were invited to further screen and modify the sample, and the final sample can be seen in Table 3. all subjects' evaluation dimensions were measured with reference to the four measures of perceived usefulness ^[17], and four categories of attributive measures consisting of "The quality review description makes me feel informed", "It makes me feel that the figure of the product meets expectations","It makes me feel that it is good value for money and helps in purchase judgement", and "It is authentically used and helps in understanding the product", scored on a 5-point Likert scale with 12 judgement items.

Table 3. Examples of keywords.

Sample type	Sample example
	1: Good overall and no colour difference
Non in protisting	2: Great value for money, worth buying
Non-ingratiating	3: It's heavy and the bones are very strong
	4: Flexible, easy to carry around

	1: It really looks good and didn't let me down				
	2: Good value for money, will buy again				
Implicit submissive	3: Solid workmanship, family members praise the quality is good				
	4: Compact and convenient, just open the umbrella feels a little too powerful				
	spring				
	1: too pretty, than I thought it would look good				
Eveli sitly a serve sive	2: Help, this price can buy a huge bargain, yo				
Explicitly persuasive	3: The quality is excellent, strong and durable, quick punch ah				
	4: Automatic opening and closing fried chicken convenient it, really great Oh				

4 Data Analysis

This research used an online questionnaire to measure and analyse the usefulness of the four categories of attribute indicators for the same product review. A total of 304 questionnaires were distributed, and after excluding incomplete responses, apparently incorrect answers and questionnaires submitted out of time, 243 questionnaires were obtained, with an effective rate of 80%. As can be seen from Table 4, the mean value of usefulness scores in each group of sample data was above 0. The mean values of usefulness for the three groups of samples under the merchandise appearance evaluation dimension were 1.10, 0.93 and 1.06 respectively, with standard deviations of 0.710, 0.708 and 0.722 respectively, a small span of scores. Therefore, firstly, the samples were tested for normality, N=243<5000, and the test result was that the data obeyed a normal distribution; next, the independent sample t-test found that the three groups of sample subjects had significant differences in usefulness in the four evaluation dimensions (p=0.000<0.001) and positive t values, indicating that most of the sample mean values of usefulness were greater than the overall mean values, and the perceived degree of usefulness was better. Finally, a paired-samples t-test was conducted on the data from the three experimental groups to determine whether there was a significant effect of explicit ingratiation, implicit ingratiation and non-ingratiating textual figures on perceived usefulness.

Table 4.	Sample	statistics.
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Variable name		Minimu m value	Maximu m value	Average value	Standard deviation	t	р
	Non-ingratiating	-1	2	1.1	0.71	23.909	0
Product Appeara	Implicit submissive	-1	2	0.93	0.708	20.314	0
nce	Explicitly persuasive	0	2	1.06	0.755	21.629	0
Durlard	Non-ingratiating	-2	2	0.86	0.777	17.015	0
Product Prices	Implicit submissive	-1	2	1.01	0.741	21.006	0

	Explicit persuasive	-2	2	1.03	0.806	19.63	0
	Non-ingratiating	-1	2	1.3	0.65	30.901	0
Product Quality	Implicit submissive	0	2	1.01	0.732	21.343	0
Quanty	Explicit persuasive	-1	2	0.98	0.785	19.33	0
	Non-ingratiating	-2	2	1.13	0.694	25.024	0
Use Bosponso	Implicit submissive	-2	2	1.21	0.745	25.062	0
Response	Explicit persuasive	-2	2	0.89	0.757	18.059	0

Note:P<0.05 means there is a significant difference.

Further, the data for each measure from the three sample groups were combined to compare the differences as the mean of the overall usefulness of the sample.

Variables	Minimum value	Maximum value	Average value	t	р
Non-ingratiating	-0.75	2	1.0966	32.807	0.000
Implicit submissive	-0.25	2	1.0410	31.169	0.000
Explicit persuasive	-0.50	2	.9884	25.821	0.000

Tables 4 and 5 reflect that the measures all show significance, meaning that the variable means are statistically significantly different from the test values. Specifically, there are significant differences in consumers' perceived usefulness, with the highest weight of high usefulness scores for non-ingratiating text figure and the lowest weight of high usefulness scores for implicitly submissive text figure in the indicator of product appearance reviews, suggesting that non-ingratiating text figure are more useful to users in perceiving product appearance attributes than the two types of appearing text figure. Similarly, in the review metric of product price, the mean usefulness scores of the two sample groups of ingratiating text figure are higher than those of non-ingratiating text figure, indicating that users tend to choose ingratiating text figure in their value assessment. In the product quality and product usage response, the lowest usefulness mean scores were found for the explicit persuasive text figure, and the highest usefulness was found for the implicit submissive review text figure in the usage response measure dimension, indicating that the strength of pleasing sentiment has a positive effect on the product usage feedback dimension, but the usefulness score decreases in the product quality dimension. The overall mean shows that the non-ingratiating usefulness perception mean is higher than the appeasing mean, and the relative ranking of the perceived usefulness scores is: non-ingratiating text figure > implicit submissive text figure > explicit persuasive text figure.

Table 6. Paired sample.test

		Average	Standard Deviation	t	р
Pairing 1	Implicit submissive-	-0.05567	0.40605	-2.115	0.035
	Non-ingratiating				
Pairing 2	Explicit persuasive-	-0.10819	0.57790	-2.888	0.004
	Non-ingratiating				

The paired sample test showed that there was a difference in review usefulness between the ingratiating and non-ingratiating text figures. In Table 6, the *p-value* for the difference in usefulness between the non-ingratiating and implicitly submissive text charts is equal to 0.35, which is greater than 0.05, indicating that the paired difference between the two groups of samples is not significant. In contrast, the *p-value* for the second set of paired results is less than 0.05, indicating that the usefulness of non-ingratiating text charts is significantly higher. In summary the study leads to hypothetical results, as is shown in Table 7.

Research Hypothesis	Influencing Relationships	Validation Results
H1	Explicit persuasive text figures are positively correlated with consumer perceived usefulness	Support
H2	implicit submissive text figures are positively correlated with consumer perceived usefulness	Support
НЗ	Consumers' perceived impact on the usefulness of explicit persuasive text is reduced compared to non-ingratiating text	Support

Table 7. Hypothesis validation.

5 Conclusions and Insights

A text-figure mining method was used to construct review word samples from three sentiment strengths: non-ingratiating, explicitly persuasive and implicitly submissive, to measure perceived usefulness in a multi-dimensional evaluation with indicators of product appearance, price, quality and response to use. The theoretical model was tested on the basis of the three affective semantics, using the initial Amazon shopping platform reviews as samples. The results show that all three sample groups tend to have a positive affective tendency towards positive reviews and that the two types of ingratiating review text figure have a significant positive effect on usefulness perception, but the non-ingratiating review text figure have a higher perceptibility. In the product appearance review dimension, users' perception of usefulness is lower for explicit persuasive text figure. In the price review dimension, users perceive the usefulness of ingratiating text figure, especially explicit persuasive text figure, to be higher, suggesting that price factors play a moderating role in the influence of review sentiment on usefulness. In the review dimensions of item quality and usage response, the usefulness of ingratiating review text figure was lower, ingratiating affective tendencies did not have a significant effect on users' perceived usefulness, and non-ingratiating text figure with weaker affective intensity were more helpful to users. It is suggested that the higher the sentiment intensity of the reviews, the greater the number of positively inclined reviews, and the relatively small number of neutral reviews are more useful than the vast majority of positive reviews.

In terms of implicit and explicit perspectives, the usefulness of explicit persuasive text figure is higher in the product appearance and price evaluation dimensions, where this influence is unconsciously contextualized and the individual is persuaded by the positive emotions of the platform's descriptive content to induce acceptance behaviour. In the quality and usage evaluation dimensions, on the other hand, the usefulness of implicitly submissive text figure is higher. The feedback from reviews reinforces users' positive attitudes towards the product and tends to select items with better feedback and more popularity ^[18], leading to a submissive purchase intention.

This study helps to test the usefulness of ingratiating reviews in shopping platforms and facilitates merchants to improve the false behaviour of manipulating reviews based on their usefulness. It is the highly functional extension of textual ingratiation and its conformity to modern consumer psychology that has prompted merchants to use consumers' personal emotions to make low-cost copies that are eventually copied and disseminated for a variety of needs, even to the extent of painting positive reviews based on textual ingratiation-type statement templates, leading to consumers being put at risks. Online shopping platforms can encourage reviewers to publish objective and truthful reviews, reduce "deliberately ingratiating" review information, provide potential consumers with practical advice and help on products, and alleviate the phenomenon of textual ingratiation with invalid and falsified information in reviews, which is conducive to the positive development of online shopping reviews.

The limitations of this study are that, for one, the definition of ingratiating words in the form of tone of voice and text-figure mining is not precise enough, and although it can reflect the intensity of ingratiating sentiment expressed in the review text-figure, it cannot yet be distinguished from the intensity of false sentiment. Secondly, the study only categorises four evaluation dimensions, which could be supplemented with dimensions such as return time and text-figure differences, which would help to improve the precision of differences in consumer perceptions of usefulness.

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