

# The Effect of Online Negative Graphic Evaluation on College Students' Travel Intention: A Moderated Mediation Model

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**Abstract:** College students are active in the tourism market, but there is still a lack of in-depth scientific explanation of the psychological mechanism of their willingness to travel. Objective: Based on the SOR theory model, the influence of negative graphic evaluation on college students' travel intention was discussed. Methods: A total of 868 college students were surveyed using the Network Negative Graphic Evaluation Scale, Perceived Risk Scale and Travel Willingness Scale. The results showed that: (1) the negative graphic evaluation of the network significantly positively affected the perceived risk and negatively affected the willingness of college students to travel, and the perceived risk significantly negatively affected the willingness of college students to travel; (2) perceived risk plays a part-mediating role between negative online graphic evaluation and college students' willingness to travel; (3) Gender can regulate the first half of the path of "negative graphic evaluation on the Internet→ perceived risk→ college students' willingness to travel". Specifically, compared with boys, the more negative graphic evaluations on the Internet, the greater the perceived risk of girls.

**Keywords:** Negative Graphic Evaluation on the Internet; Gender; Risk Perception; Willingness to Travel; College Students

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## 1. Introduction

In the era of the Internet of the whole people, online shopping, consulting, etc. have greatly enriched and facilitated people's lives. In the era of mass tourism, tourism has profoundly changed people's lifestyle<sup>[1]</sup>. With the integration of network technology into the development of tourism, people often use online platforms to understand the environment and related information of the destination in advance before planning a trip or choosing a destination<sup>[2]</sup>. Recent research reports have shown that young people, represented by university students, are the most active in the tourism market<sup>[3]</sup>, they are proficient in using smartphones and the Internet, and prefer to obtain tourist destination information through the Internet<sup>[4]</sup>. Previous studies have found that graphic evaluation on scenic spot network platforms is the content that college students pay more attention to<sup>[5]</sup>, especially the emotional evaluation, which often affects or even changes travel plans, and negative evaluation has the greatest impact<sup>[6]</sup>. Therefore, in-depth discussion of the influencing factors and psychological mechanism of college students' willingness to travel is of great significance to the creation and development of the network environment of scenic spots in the future.

Studies have found that family economic strength, leisure time, and individual characteristics (personality, gender, education, emotions, etc.) will affect college students' willingness to travel<sup>[7]</sup>. Although a large number of valuable studies have been accumulated in the field of travel intention, almost no one has examined the impact of negative online graphic evaluation on college students' willingness to travel. Graphic evaluation in the network environment is a form of online word-of-mouth, which objectively describes the positive and negative evaluations of products or services through the network. Online negative graphic evaluation is in the form of evaluation and explanation of scenic tourism-related products or services through a special tourism network platform, in the form of

negative pictures or text information. The study found that the impact of online word-of-mouth or evaluation on consumers' purchase intention is nine times that of advertising on consumers, and the radiation range, transmission speed and influence are much stronger than traditional word-of-mouth. There is a close relationship between the negative graphic evaluation of scenic spot networks and perceived risks, including product risks, financial risks, service risks, etc, and risk perception is an important incentive for college students' willingness to travel in the current environment. Therefore, negative online graphic evaluation is likely to be related to travel intentions.

## 1.1 Online negative graphic evaluation and willingness to travel

There may be two reasons why negative graphic evaluation on the Internet is related to travel intentions.

First of all, people can find differentiated demand points and distinctive services through scenic spot graphic evaluation, so as to meet personal travel needs. On relevant online platforms, there are many comments on scenic spots, both positive and negative, among which the positive ones are the main ones. Negative reviews, although fewer, attract the most attention. Reviews that are easy to understand and relevant, are numerous, focused or quite engaging, and influence travelers' travel decisions. The visual impact and effect of picture communication are more effective than text, and the evaluation method combining graphics and text will be more useful. Therefore, on the basis of previous research, hypothetical research is carried out on the evaluation of negative graphics and text of the network, including quantity, quality and potency.

Secondly, for scenic spots, it is necessary to understand what useful information online graphic evaluation can bring to potential tourists, thereby affecting their willingness to travel. As more and more tourists choose to purchase tourism products and services through the Internet, the number of online reviews of scenic spots will continue to increase, and the impact on scenic spots will be greater. Lee believes that the quality of reviews is related to whether the content of the review is clear and organized. Chen believes that the quality of the evaluation is directly proportional to the usefulness of the evaluation, and also affects the purchase volume of the product or service. Therefore, the higher the quality of negative graphic evaluation, the more convincing it is. The number of evaluations is the amount of evaluation of tourism products, tourism services and the overall environment of a scenic spot by the relevant platform. There are good and bad reviews for the quality of reviews, both of which attract the attention of travel consumers. The more positive reviews, the more can enhance the online reputation and credibility of the scenic spot, the more it can promote the purchase willingness of potential tourists, on the contrary, the more negative comments, the lower the online reputation and reputation of the scenic spot. This has led to a decrease in the willingness of travel consumers to travel. Evaluation potency refers to tourists' satisfaction with purchased products or services, mainly including three indicators: good reviews, medium evaluations and bad reviews. Opinions are generally expressed through the attitude towards the graphic evaluation content of scenic spots, such as the pictures or text of a scenic spot review are very radical and dazzling, from which it can be inferred that tourists may not be satisfied with the service received.

Therefore, based on the above analysis, this study proposes a hypothesis that H1: negative graphic evaluation on the network has a negative impact on college students' willingness to travel.

## 1.2 Mediating role in perceived risk

Based on the stimulus-organism response (SOR) model, we believe that perceived risk is a mediating variable worth considering. First, negative online graphic evaluation may be associated with perceived risk. The diversity of online platforms is accompanied by complexity, so there are certain risks in purchasing products or services online, and college students may not have the products or services purchased through online platforms. Get a satisfying experience. The theory of SOR holds that risk is people's own perception of external stimuli, and a certain range of risk is acceptable, but if it exceeds its tolerance scope, which reduces the purchase of products or services. Perceived risk is the function of a psychological mechanism, and the correct handling of perceived risk can increase consumers' willingness to purchase services or products, and previous studies have also demonstrated this conclusion.

Second, there may be a link between perceived risk and willingness to travel. In addition to objective factors such as leisure time and economic strength, college students' willingness to travel may also be related to their perceived risks, such as traffic congestion,

inconsistent scenic environment and publicity. People yearn for it before traveling, but once "what they see is not heard", the sense of travel experience is low, which leads to concerns among tourists, thus influencing the willingness to travel. People tend to go to trusted stores to buy products or services, and the same goes for travel products. Therefore, once people perceive that the risk of traveling is high, they will instinctively reduce their willingness to travel.

Therefore, based on the above research, the following hypothesis is made: H2: Network negative graphic evaluation has a positive impact on perceived risk. H3: Perceived risk has a negative impact on travel intention.

### 1.3 The regulating role of gender

Previous studies have found that male and female consumers show differences in consumption patterns and in the search and processing of consumption information. Perceived risk levels were significantly higher in women than in men. Studies have shown that the difference between male and female consumers in terms of online shopping behavior stems from their differences in risk perception between men and men. Consumers believe that online shopping is more convenient and faster, the perceived risk is lower, and the degree of trust in online shopping is higher than that of women. Women perceive more risk and are more sensitive to perceived risk in the same condition. Similar studies show that effective risk perception can help decision-makers make correct decisions, and college students' willingness to travel and perceived risk are greatly affected by negative online evaluation. However, there may be differences in the degree of influence between groups of college students of different genders.

Therefore, based on the above research, the following hypothesis is proposed: H4: Gender may moderate the first half of the path of college students' willingness to travel through the mediating effect of perceived risk.

In summary, this study intends to explore the relationship and mechanism of negative online graphic evaluation, perceived risk, gender and college students' willingness to travel, and proposes a moderated mediation model: gender can regulate "negative graphic evaluation on the Internet." → perceived risk → the first half of the path of college students' willingness to travel (see Figure 1).

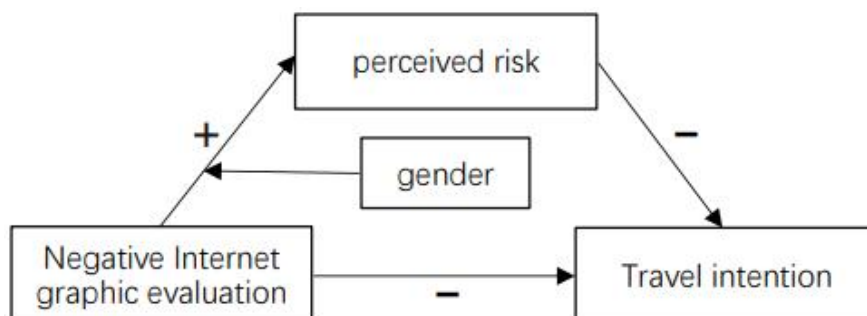


Figure 1 Variable relationship hypothetical model

## 2. Methods

### 2.1 Objects

A total of 1,000 questionnaires were distributed to students from one university in Jiangsu Province and two universities in Henan Province, excluding missing answers and the first part Questionnaires with the "No" option selected in questions 5 and 6 were recovered, and 868 valid questionnaires were recovered (effective rate was 86.8%). Among them, 566 were effectively tested in Chinese subjects and 302 in science; 347 boys and 521 girls; There were 57 freshmen, 593 sophomores, 147 juniors, and 34 seniors, 37 graduate students. The data shows that the top five browsing travel platforms are: Ctrip, Meituan, Qunar, Dianping, Douyin and so on.

## 2.2 Tools

### 2.2.1 Network negative graphic evaluation (quality, quantity, potency) scale

Using the scale prepared by Park, Lee & Han and Feng Xiya, a total of 10 items, single factor. Using a score of 5 points from "strongly agreed" to "very disagreed", the higher the total score, the more serious the negative evaluation of the scenic spot network. Previous studies have shown that the scale has good reliability and validity. This study retested it, and the fitting index of the single factor model showed  $\chi^2/df=4.78$ , RMR =0.04, RMSEA=0.09, NFI=0.94, RFI=0.92, IFI= 0.95, TL I=0.93, CFI=0.95, GFI=0.93,  $\alpha$  coefficient is 0.92, except for the critical point of RMSEA, which is slightly above 0.05, the rest of the indicators have reached the standard. It shows that the reliability and validity of the Chinese version of the scale is acceptable and meets the measurement requirements.

### 2.2.2 Perceived risk scale

The perceived risk scale prepared by Bansal and Forsythe was used for 3 items. A score of 5 points from "strongly agreed" to "strongly disagreed" was used, with higher scores indicating greater perceived risk. Previous studies have shown that the scale has good reliability and validity, and is suitable for Chinese subjects. In this study, the scale has a  $\alpha$  coefficient of 0.88.

### 2.2.3 Travel Willingness Scale

Using the travel intention scale prepared by Zeitha and Dodds, part of the content was revised to meet the research needs, a total of 3 items. A score of 5 points from "strongly agreed" to "strongly disagreed" was used, and higher scores indicate lower willingness to travel. Previous studies have shown that the Chinese version of the scale has good reliability and validity, and is suitable for Chinese subjects. In this study, the scale has a  $\alpha$  coefficient of 0.85. Indicate that the reliability and validity of the scale is acceptable.

## 2.3 Data Collection and Processing

This study was supported by teachers and students in tourism studies and psychology-related fields prior to the test. The on-site test using the online platform emphasizes the authenticity of answers, the anonymity of the survey, and the scope of application of the data, etc., and the whole process takes about 10 minutes. SPSS21.0 and Amos24.0 were used for data processing and related analysis, incomplete data was deleted, and the SPSS macro process compiled by Hayes was used to verify the mediating role of regulation.

## 2.4 Common method deviation test

In order to reduce the common methodological bias caused by self-report data collection, this study was controlled by anonymous surveys, changing words and sentences, etc. in terms of procedure. Statistically, homologous bias is tested using the Harman one-way test. The results show that three factors with features greater than 1 are obtained by the principal component factor analysis without rotation, and the total variation explained by the first factor is 26.30%, less than the critical standard of 40%, indicates that there is no serious homologous deviation problem.

## 3. Result

### 3.1 Descriptive statistics and correlation coefficients of each variable

The average scores of four variables: negative online graphic evaluation, gender, perceived risk and travel willingness were analyzed, and the results showed that negative online graphic evaluation was positively correlated with perceived risk and gender, and negatively correlated with travel intention. Gender was positively correlated with perceived risk and negatively correlated with willingness to travel. Perceived risk is inversely correlated with willingness to travel (see Table 1).

Table 1 Descriptive statistics and correlation coefficient matrix between variables

variable	M	SD	1	2	3	4
1. Gender	0.60	0.49	1			
2. Evaluate	3.70	0.74	-0.29**	1		
3. Perception	4.00	0.74	-0.13**	0.65**	1	
4. Willingness	2.20	0.89	0.21**	-0.26**	-0.30**	1

Note: n=868,\*p<0.05, \*\*p<0.01, \*\*\*p<0.001

M is the mean, SD is the standard deviation; All variables in the model are standardized. Keep all values as two decimal places;; The same as below.

### 3.2 Mediation Model Test with Reconciliation

According to Hayes<sup>[40]</sup>The view is adjusted using the deviation-corrected percentile bootstrap method Mediation model. The first step is to apply SPSS model 4. Test the mediating role of perceived risk. The results show that Internet Negative graphic evaluation can significantly predict risk perception,  $a=0.66$ ,  $SE=0.03$ ,  $p < 0.001$ ; Internet Negative graphic evaluation, perceived risk and regression equation at the same time, Internet Negative graphic evaluation can still significantly predict travel intention,  $c'=-0.13$ ,  $SE=0.05$ ,  $p < 0.001$ , perceived risk can also significantly predict travel intention,  $b=-0.28$ ,  $SE=0.05$ ,  $p < 0.001$ ,  $ab=-0.18$ , BootHERSELF=0.04, 95% The % confidence interval is [-0.26,-0.11], Explain that the perceived risk is in Internet The mediating effect between negative graphic evaluation and college students' willingness to travel is obvious. The total proportion of mediation effects is:  $ab/(Off+ c')=48.7\%$ .

The second step is to apply the model 7 The test has a mediating role in moderation First half path。 Regression analysis shows that Internet Negative graphic evaluation can significantly predict perceived risk ( $B=0.66, p < 0.001$ ), gender predicts perceived risk ( $b=0.12, p < 0.005$ ), Internet Negative graphic evaluation and gender interactions 也 Significantly predicts perceived risk ( $b=-0.18$ ,  $p < 0.001$ )。 Internet Negative graphic evaluation, perceived risk and regression equation at the same time, Internet Negative graphic reviews can still predict travel intentions ( $b=-0.13, p < 0.005$ ), perceived risk can significantly predict travel intentions ( $b=-0.28, p < 0.001$ )。 This shows that gender has a negative graphic evaluation of the "Internet."→Perception of risk→Willingness to travel The first half of this mediation path plays a regulating role. (See Table 2).

Table 2 Moderated mediation effect test

	Equation 1 (Criterion: flow experience)			Equation 2 (Criterion: willingness to travel)		
	SE	$\beta$	t	SE	$\beta$	t
Types of tourism resources				0.06	-0.18	-2.97
Webcast culture	0.03	0.77	27.19	0.04	0.30	7.24
Flow experience				0.04	0.54	13.34
Flow experience × Types of tourism resources				0.06	0.18	3.00
R <sup>2</sup>		0.51			0.64	
F		535.62			234.77	

PS: \*p<0.05; \*\*p<0.001

In order to more clearly reveal how gender moderates the relationship between negative graphic evaluation and perceived risk on the Internet. In PSS, the gender variables are grouped high and low according to  $M \pm 1SD$  and the simple slope is calculated. The results showed that negative graphic evaluation had a higher effect on the perceived risk of female college students than that of male students (female:  $B_{simple}=0.77$ ,  $t=19.67$ ,  $p < 0.001$ ; M:  $B_{simple}=0.59$ ,  $t=16.10$ ,  $p < 0.001$ ).

On the whole, gender can regulate the first half of the intermediary path of "negative online graphic evaluation→ perceived risk→ willingness to travel". Specifically, compared with boys, the more negative graphic evaluations on the Internet, the greater the perceived risk of girls (female:  $index=-0.21$ ,  $BootSE=0.04$ , 95% confidence interval is [-0.30,-0.13]; Male:  $index=-0.16$ ,  $BootSE=0.04$ , 95% confidence interval is [-0.24,-0.10])。

## **4. Discussion**

### **4.1 The relationship between negative online graphic evaluation and travel intention**

This study examines the relationship between negative online graphic evaluation and travel intention, and finds that online negative graphic evaluation significantly negatively predicts travel intention, which is consistent with hypothesis H1 and consistent with relevant foreign research results. This study enriches the relationship between network evaluation cognition and travel intention, and advances it in two aspects. First, previous studies have paid more attention to the influence of the real environment perception or events of tourist destinations on tourists' willingness or emotions to travel, which is a pull factor. Less attention is paid to the relationship between the virtual evaluation of the network environment of scenic spots and the willingness to travel. This study considers the role of thrust factors, and cleverly introduces the negative graphic evaluation of scenic spots on online platforms into real problems. It is found that this variable has a good correlation with travel intention, which is very suitable for quantitative processing, which solves the dilemma that tourism subjective willingness research cannot be effectively quantitatively analyzed, and provides new ideas for future research. In the future, we can continue to investigate the relationship between the subdivision path of negative graphic evaluation (such as negative evaluation quality, quantity, potency, etc.) and travel intention. Second, previous studies have found that personal economic strength, leisure time, education, age, etc. are all related to travel intentions, but few researchers have paid attention to the role of individual cognition. Even in the interpretation of subjective factors affecting the willingness to travel, in books, it is only a hypothesis: people have the intention to travel. In subsequent research, although the hierarchy of needs theory was introduced, it could not be generally recognized by scholars due to the application conditions of the hierarchy of needs theory itself. Previous studies have also paid more attention to the integration of the Internet into tourism development, but most of them exist in the construction of smart scenic spots, such as smart tourism, big data platforms, etc. This study has made a breakthrough in this regard, putting the research question in front, using the integration of the Internet and tourism, and quantifying the virtual negative graphic evaluation. The results can effectively reflect the relationship between negative graphic evaluation and college students' willingness to travel.

### **4.2 The mediating role of perceived risk in the evaluation of negative graphics and text on the network and the willingness to travel**

This study finds that the negative predictive effect of negative image and text evaluation on travel intention can be achieved either directly through the path or indirectly with the travel intention by increasing the perceived risk, which verifies the hypothesis H2 and H3 Established. Previous studies have found that although everyone yearns for a walk-and-go trip, there are actually various subjective and objective constraints. Previous studies have also found that the purchase of tourism products or services is fundamentally different from the purchase of other goods or services, and tourism goods and services are more limited by time and space. This leads to a time and space gap between tourists' willingness to travel and arrival at tourist destinations. This risk is also uncontrollable, such as due to sudden weather changes, traffic jams, temporary accidents and other factors. This study also found that when preparing for travel, people often use online channels to obtain information, and people will first capture effective information through online platforms, such as graphic evaluations of the scenic spot on the ticket purchase page. When people see negative evaluation information, the instinctive stimulus response will think about whether the safety and property of the individual will be threatened, and then decide whether to continue to purchase the tourism product. Therefore, when the risk of going to a certain place is perceived to be high, people often choose to stay in place or choose to travel to other areas in order to avoid risks. Relevant studies at home and abroad also confirm this view.

### 4.3 Moderating role of gender

This study found that gender can moderate the first half of the online negative graphic evaluation to influence college students' willingness to travel through perceived risk, which proves that the hypothesis H4 is valid. Previous studies have found that men and women perceive things in essence but differ emotionally. Differences in performance in negative emotions were greater, and female groups were more strongly affected by negative information than male groups. This is consistent with the first half of the path of the results of this study. Previous research has also found that too much negative information may directly lead to a loss of interest in an event, a process that has gender differences. The study also found that female college students are more affected by negative online graphic evaluations, and out of self-protection, they prefer to carefully check relevant information online before traveling, and tend to choose scenic spots with lower perceived risk.

### 5. Conclusion

(1) The negative graphic evaluation of the network has a significant negative predictive effect on college students' willingness to travel; (2) Perceived risk plays a part-mediating role between negative online graphic evaluation and college students' willingness to travel; (3) Gender can regulate the first half of the intermediary, specifically, compared with boys, the more negative graphic evaluations on the Internet, the greater the perceived risk of girls.

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