

QUESTIONNAIRE DEVELOPMENT AND TEST OF ITS RELIABILITY AND VALIDITY FOR COLLEGE STUDENTS' CONSUMPTION ATTITUDE TOWARDS TAKEAWAY¹

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Abstract: In the information age, takeaway has become an important way for people to consume food. College students' online ordering of food takeaways has become an important part of life. It is of practical significance to understand the consumption characteristics and consumption values of college students by investigating their attitudes towards takeaway consumption through questionnaires. Objective: To design a "college students' takeaway consumption attitude questionnaire", which includes cognitive and emotional components. Methods: On the basis of literature research, the consumption attitude of college students to takeaway consumption was understood through semi-structured interviews, and the questionnaire items were designed according to the interview results; in the form of questionnaire survey, 246 "college students' takeaway consumption attitude questionnaires" were distributed to test the internal consistency, exploratory factor analysis and validity of the questionnaire. Result: Internal consistency of the questionnaire α the coefficient is 0.885; the KMO value of the questionnaire is 0.852 > 0.8, $\chi^2 = 1754.637$, with a significance level of 0.000, indicating that the college students' takeaway attitude questionnaire is suitable for factor analysis, and factors with a characteristic root greater than 1 (perceived value, subjective norms, satisfaction, trust) are extracted, with a cumulative variance of 64.674%, reaching an acceptable value. Conclusion: The college students' takeaway consumption attitude questionnaire has good reliability and validity, and can be used as a tool for the study of college students' consumption attitude towards takeaway"

Keywords: Takeaway consumption attitude; Reliability; Validity; College student

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In the information age, takeaway has become an important way for people to consume food. Although Chinese colleges and universities have public cafeterias for students and some restaurants with independent experience, online ordering of food takeaways for college students has become an important part of life, reflecting the changes in college students' consumption culture and consumption psychology. It is of practical significance to understand the consumption characteristics and consumption values of college students by investigating their attitudes towards takeaway food consumption through questionnaires.

Foreign scholars put forward different connotations of attitudes according to their research objects and research needs. The first point of view is that attitude has a single component of emotion, which is defined as an individual's psychological tendency to approve or disapprove of other people, events and other objects, reflecting the individual's emotional response to consumption objects. Ajzen I., Fishbein M. defined attitude as an individual's learning tendency. According to this tendency, an individual has an emotional state of likes and dislikes for a specific observation object, and further proposed that attitude is a factor that affects behavioral intention^[1]. The second view is that attitude is a unity of cognition and emotion. Rokeach M. believes that attitude depends on several related beliefs and organizations of individuals to specific objects^[2]. The third view is that attitude includes cognitive, emotional and behavioral tendencies. Krech D., Crutchfield R. S. and other scholars define attitude as a lasting system composed of individuals' positive or negative evaluation of objects, emotional feelings, and behavioral tendencies of support or opposition^[3]; Freedman J. L., Carlsmith J. M. and others put forward the ABC model of attitude, which divides attitude into three factors: cognition, emotion and behavioral orientation. Individuals have a cognitive evaluation of the relevant information of specific objects, and thus form a favorable or an unfavorable attitude towards them, and show certain behavioral orientation under the influence of attitude^[4].

In the study of consumer attitudes by domestic scholars, Li Pinyuan suggests that it is the tendency of how individuals react to goods, services and related things in the purchase and use of goods^[5]. Luo Ziming believes that consumer attitudes are the psychological and behavioral tendencies of consumers to affirm or deny, support or oppose goods, services and related matters^[6]. Huang Minxue and other scholars summarized the differences between horizontal and vertical consumption attitudes, and proposed that horizontal attitudes include five dimensions: concept, audio-visual, behavior, service and product, and vertical attitudes are divided into three modules: material, social and spiritual^[7].

Online takeaway aims to use the Internet as the medium to connect users and offline catering enterprises. With the help of the Internet information

platform, taking the takeout resource integration as the core and being user demand-oriented, it provides users with rich takeaway information and convenient takeaway services, so that users can order food online without leaving home^[8]. This study combines the research of foreign scholars on attitudes and of domestic scholars on consumption attitudes. According to the research needs, it is believed that attitudes are a unity of cognition and emotion. The takeaway consumption attitude is defined as the positive or negative views held by consumers on products and services they have bought. It is also known as the psychological tendency to approach or avoid, which is divided into two components: takeaway consumption cognition and takeaway consumption emotion. Cognition is the perception or understanding of consumers about the attributes and characteristics of takeaway products and services; Emotion refers to the emotional response of consumers to the takeaway products or services they have bought, which shows support, opposition or indifference.

1. Questionnaire Development

First, the interview method is used to interview 14 college students in a university to understand the reasons, cognition and other information of their takeaway consumption, thus obtaining first-hand information. Then the interview results are classified by content analysis method. The college students' takeaway consumption attitude is divided into two components: "cognition" and "emotion", of which "cognition" includes two dimensions: "perceived value" and "supervisor's norms", "emotion" includes two dimensions of "satisfaction" and "trust". Finally, the items of the preliminary questionnaire are compiled to form the "College Students' Takeaway Consumption Attitude Measurement Items" (see Table 1). The items are integrated into the preliminary questionnaire. Likert's five-point scoring method is adopted. 1 – 5 respectively represents "very disagree", "basically disagree", "uncertain", "basically agree" and "very agree".

Table 1. Measurement items of college students' takeaway consumption attitude

Component	Dimension	Item
Cognition	Perceived value	1. I think takeaway consumption can usually offer more delicious food than the canteen.
		2. I think takeaway food has higher nutritional value.
		3. I think takeaway food has guaranteed sanitation and will not harm human health.
		4. I think takeaway food has clean packaging.
		5. I think takeaway food is easy to get. It's a very convenient way of consumption.
		6. I think takeaway consumption can save time.
		7. I think the price of takeaway food is reasonable
	Subjective norm	8. When I am with my roommates or friends, I will order takeaway with them.
		9. The takeaway comment function can help me get acquainted with others' comments on products and services and affect my purchase decision.
		10. As recommended by friends and family around me, I will be interested in takeaway consumption.
		11. Takeaway consumption has become a social trend, and I will be interested in takeaway consumption.
Emotion	Satisfaction	12. Advertising about takeout food products will affect my takeaway consumption decision.
		13. I think ordering takeaway is a good choice.
		14. I think takeaway consumption is cost-effective.
	Trust	15. From my experience of takeaway food, I am satisfied with it.
		16. I believe that the merchants settled in the platform are audited and trustworthy.
		17. I believe that the information of the takeaway platform and the merchants is true and reliable and will not mislead consumers intentionally.
		18. I believe that the evaluation of other consumers on the platform is true and trustworthy.
19. I believe that the technical guarantee of the platform can protect my personal information and property security.		

2. Objects and tools

2.1. Subjects

Adopting the method of cluster stratified sampling, a total of 200 college students were selected at a university in Wuhan to conduct an on-site questionnaire survey. 196 questionnaires were recovered, with a recovery rate of 98%. The questionnaires were screened, and 187 valid questionnaires were obtained, with an effective rate of 95.41%. The questionnaire was distributed on the questionnaire star platform, and 102 questionnaires were collected. Judging from the time consumption, as well as the occurrence of regular answers and consistent options, 60 valid questionnaires were screened, with an effective rate of 58.82%. There are 247 valid questionnaires, including 134 boys and 113 girls; 35 freshmen, 56 sophomores, 67 juniors and 89 seniors.

2.2. Research tools

Self-compiled Questionnaire on College Students' Takeaway Consumption Attitude adopts the form of single choice and forced selection. The analysis and statistics tool uses SPSS20.0ForWindows and AMOS20.0 software packages.

3. Results

3.1 Project analysis

Item analysis is used to test the reliability of individual items in the questionnaire, and the analysis results can be used as the basis for item selection. First of all, the total score of the collected questionnaire is calculated and sorted. The scores at 27% of the upper and lower points of the high and low groups will be found, which is regarded as the critical value. According to the critical value, the scale scores are divided into high and low groups, and independent sample t-test is employed to analyze the results of the extreme group decision value or critical ratio. Then, the correlation between the item and the total score is analyzed and corrected. Finally, a homogeneity test is put in place and internal consistency α the coefficient and factor load are tested for reliability. If the correlation coefficient is less than 0.4, it means that the item is only a low-degree relationship with the scale construction and is not closely related. This item can be considered to be deleted^[9]. The item analysis results of the questionnaire are shown in Table 2.

Table 2 Analysis results of college students' takeaway consumption attitude questionnaire

	Decisive value	Correlation between item and total score	Correction items are related to the total score	After the item is deleted α value	Factor load	Number of indicators not meeting the standard	Remarks
1	12.072***	0.640***	0.592	0.876	0.648	0	retain
2	9.223***	0.559***	0.515	0.879	0.576	0	retain
3	7.880***	0.509***	0.459	0.880	0.528	0	retain
4	7.972***	0.519***	0.466	0.880	0.528	0	retain
5	6.968***	0.491***	0.432	0.882	0.467	0	retain
6	7.786***	0.477***	0.415	0.882	0.454	0	retain
7	11.259***	0.583***	0.529	0.880	0.466	0	retain
8	10.663***	0.579***	0.516	0.883	0.560	0	retain
9	6.053***	#0.383***	#0.318	#0.886	#0.339	4	retain
10	6.899***	0.469***	0.410	0.878	0.442	0	retain
11	10.257**	0.626***	0.575	0.879	0.617	0	retain
12	5.561***	#0.374***	#0.308	#0.886	#0.338	4	retain
13	7.335***	0.491***	0.431	0.875	0.481	0	retain
14	11.223***	0.632***	0.588	0.877	0.648	0	retain
15	13.374***	0.659***	0.591	0.877	0.672	0	retain
16	9.810***	0.598***	0.620	0.878	0.611	0	retain
17	9.203***	0.572***	0.552	0.879	0.594	0	retain
18	8.451***	0.537***	0.525	0.880	0.535	0	retain
19	7.944***	0.534***	0.489	0.880	0.538	0	retain

Note: # refers to the indicator not meeting the standard;*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Through analysis, the internal consistency of college students' takeaway consumption attitude questionnaire α the coefficient is 0.885. According to the analysis and test results of the questionnaire items one by one, the results of the 9th and 12th items all fail to meet the statistical requirements, so the 9th and 12th items are deleted.

3.2. Exploratory factor analysis

The construct validity of the exploratory factor analysis scale is used. Before the factor analysis, Bartlett spherical test and KMO analysis are carried out. The larger the two indicators are, the more suitable the factor analysis is. It is generally believed that when the KMO value is greater than 0.9, it is very suitable for factor analysis; between 0.8–0.9, it is more suitable for factor analysis;

Between 0.7 – 0.8, it is suitable for factor analysis; if the value is between 0.6 and 0.7, it is normal. If the value is lower than 0.6, it is not suitable for factor analysis.

The cumulative variance of the principal component factor analysis of the questionnaire variables is more than 60 %, reaching an acceptable level; finally, rotate the factor load. The factor load value of each item should be greater than 0.4, or the absolute value of the negative value should be greater than 0.4. The analysis results are shown in Table 3.

Table 3. Bartlett spherical test and KMO analysis results of the questionnaire

Variable	KMO	χ^2	df	sig	Cumulative variance
Takeaway consumption attitude	0.852	1754.637	153	0.000	64.674 %
Takeaway consumption intention	0.832	620.00	6	0.000	77.212 %

It can be seen from Table 3 that the KMO value of takeaway consumption attitude is $0.852 > 0.8$, $\chi^2 = 1754.637$, with a significance level of 0.000, indicating that the college students' takeaway attitude questionnaire is suitable for factor analysis, and the cumulative variance is 64.674 %, which is acceptable.

The exploratory factor analysis of takeaway consumption attitude is shown in Table 4.

Table 4. Factor load matrix of college students' consumption attitude towards takeaway questionnaire (rotation)

Item	Component				
	1	2	3	4	5
1	0.695				
2	0.836				
3	0.940				
4	0.824				
5		0.717			
6		0.849			
7		0.820			
8			0.819		
10			0.616		
11			0.607		

13	0.761	
14	0.738	
15	0.839	
16		0.844
17		0.793
18		0.658
19		0.652

As can be seen from Table 4, the 17 items of college students' takeaway consumption attitude are divided into five factors, among which, items 1, 2, 3 and 4 are classified as the first factor, and the items described are the characteristics of takeaway products, so the first factor is named "product characteristics"; items 5, 6 and 7 are classified as the second factor. They measure the convenience brought by individual takeaway consumption, so the second factor is named "perceived value"; item 8, 10 and 11 are listed as the third factor. The items describe the influence of others on the consumption behavior of individuals when they consume takeaway. Therefore, the third factor is named "subjective norm"; item 13, 14 and 15 are classified into the fourth factor, among which the items measure college students' satisfaction of takeaway consumption, so the fourth factor is named "satisfaction"; item 16, 17, 18 and 19 are the fifth factor. The items measure the degree of trust of college students in selling platforms and businesses, so the fifth factor is named "trust". The factor load value of each item has reached an acceptable level.

3.3. Reliability analysis

Internal consistency is used in this study α , the coefficient is used as a reliability index. Internal consistency of the questionnaire α the coefficient value is above 0.900, indicating that the reliability is very ideal; the range of 0.800 and 0.899 indicates good reliability; the range of 0.700 – 0.799 indicates good reliability; the range of 0.600 – 0.699 indicates the reliability is acceptable; the range of 0.500 – 0.599 indicates the reliability is low; the value lower than 0.500 indicates poor results which are better to be deleted. The test results of the total reliability and reliability coefficient of each dimension of the college students' consumption attitude towards takeaway questionnaire are shown in Table 5.

Table 5. Reliability values of variables and dimensions

Variable	Factor	Dimension	Internal consistency α coefficient
Takeout consumption attitude			0.870
		Product characteristics	0.846
	Cognition	Perceived value	0.637
		Subjective norm	0.662
	Emotion	Satisfaction	0.660
Trust		0.802	

It can be seen from Table 5 that the internal consistency of each dimension of attitude in this questionnaire α the coefficient is 0.637 – 0.846, and the total reliability of the questionnaire is 0.870. It can be seen that the perceived value, subjective norms and satisfaction reliability of the questionnaire used in this study are acceptable, and the product characteristics and trust reliability are very good. In general, the reliability of the questionnaire is good, meeting the requirements of statistics.

3.4. Structural validity analysis

Structural validity refers to the corresponding degree between the structure reflected in the measurement results and the measured values. This study uses Amos 20.0 to conduct confirmatory factor analysis, adopting the maximum likelihood method, and judges whether the structure of the questionnaire is consistent with the theoretical concept through the fitting index. The test results of the five-factor model of the college students' consumption attitude towards takeaway questionnaire are shown in Table 6. The fitting index of the five-factor model is good: the closer the CMIN /DF (Chi Square Freedom Ratio) value is to 1, the higher the fitting degree of the model is, $2.108 < 3.0$, indicating that the model is good; The RMR value is $0.048 < 0.050$, meeting the adaptation standard; The smaller the value of RMSEA (approximation error), the better the fitness is, $0.051 < 0.08$, indicating the fitness of the model; The values of GFI, IFI, TLI and CFI (comparative fit index) are all greater than 0.900, which conforms to the model adaptation standard.

Table 6. Structural model validation index of college students' consumption attitude towards takeaway questionnaire

Fitting index	CMIN/DF	RMR	RMSEA	GFI	IFI	TLI	CFI
	2.108	0.048	0.051	0.922	0.931	0.915	0.930

3.5. Composition and conclusion of formal questionnaire

The project analysis results of the college students' consumption attitude towards takeaway questionnaire finally determine its five dimensions: product characteristics (including items 1, 2, 3, and 4), perceived value (including items 5, 6, and 7), subjective norms (including items 8, 10, and 11), satisfaction (including items 13, 14, and 15), and trust (including items 16, 17, 18, and 19). Internal consistency of college students' consumption attitude towards takeaway questionnaire α the coefficient is 0.870. The coefficient is between 0.637 – 0.846, CMIN /DF is 2.108, RMR is 0.048, RMSEA is 0.051, GFI, IFI, TLI and CFI are all greater than 0.900, indicating that the reliability and validity of the questionnaire are good, meeting the requirements of statistics, and can be used for research.

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ⁱ Fund project: "Research on the impact of college students' consumption values on selling and consumption behavior" (DXS2019004)