

# Research on the Preferences of Cafeteria Consumers Based on Factor Analysis

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**Abstract:** With the rapid development of China's economy and the continuous improvement of living standards, people pay more and more attention to diet nutrition and health. Buffets are becoming more and more popular because of their ability to meet consumers' various dietary needs. On the basis of the cafeteria, music cafeteria has added music, TV and on site singer's singing, which not only satisfies the consumer's demand for dining, but also increases the consumer's interest and comfort. In order to understand college students' preference for music cafeteria consumption, firstly, this paper adopts a questionnaire survey to obtain the statistical data of students in Shanxi University of finance and economics. After that, descriptive statistics, multiple responses, cross analysis, factor analysis and other statistical analysis methods were comprehensively used to analyze the investigation data. Finally, based on the analysis results, the author provides corresponding strategies and suggestions for the operators of the music cafeteria.

## 1. Introduction

Buffet is called buffet, mainly because it can mobilize the subjective initiative of the diner when eating, in the established range of arrangements to choose dishes. [1-2] It is a common problem in the catering industry, and the emergence of buffet to a large extent to solve this problem, it can omit the trouble of ordering and other dishes, so that consumers can taste all kinds of food in a limited time and space, so it has become one of the modern city people prefer eating. [3-4] with the rapid development of the city's economy and the acceleration of the pace of life, buffet is becoming more and more popular among people. The survey will use a questionnaire to collect the Shanxi University of Finance and Economics students' needs for buffets. Then, through data processing and questionnaire analysis, we fully understand the requirements of college students on food, hygiene, environment, price, service, distance and preferential ways of buffet, college students' main purpose of dining and access to the cafeteria. Finally, through carding the survey results for the music cafeteria to provide theoretical support and experience of revenue management. [5-6]

## 2. Investigation Plan

### 2.1 Pre-investigation and Formal Investigation

Before the formal survey, we made a preliminary survey of the students who met the requirements of the survey objects around us by using QQ, WeChat and other instant online communication tools. After that, we revised and improved the questionnaire for various problems in the research process. Finally, a total of 164 students were selected for the survey.

### 2.2 Reliability and Validity Analysis

Before carrying out statistical analysis on the results of the questionnaire, it is necessary to analyze its reliability and validity. Only when the credibility and validity are within the acceptable range can be the statistical results of the questionnaire to be valuable and further analysis is necessary.

(1) Reliability Analysis.

Table 1. Questionnaire Reliability Analysis.1

Reliability Statistics	
Cronbach's Alpha	A number of
0.705	32

Based on the reliability analysis of the questionnaire of students, the Cronbach's Alpha reliability coefficient is  $0.705 > 0.7$ , suggesting that the questionnaire data have a considerable reliability.

(2) Validity Analysis.

Table 2. Validity Analysis.

KMO and Bartlett Tests.		
The number of KMO sampling appropriateness		724.
Bartlett test of Sphericity	The approximate chi-square	1059.573
	Degrees of freedom	190
	significant	000.

According to the analysis of KMO and results of Bartlett test of sphericity, the scale items were tested. The appropriateness quantity of KMO sample was 0.724, the Bartlett test of sphericity was 1059.573, and the P value was less than 0.01, which were suitable for factor analysis.

**2.3 Data Processing**

The number of questions in the questionnaire is all about 30, and the respondents' average time to answer is 291.35 seconds, and the number of 10 minutes is 136 seconds. Therefore, if the time to answer a questionnaire is less than 136 seconds, the questionnaire is invalid. After eliminating invalid questionnaires, 161 valid questionnaires were obtained.

**3. Descriptive Statistical Analysis**

In order to understand college students' preference for buffet food and service, this paper investigates college students' choice of dining out, the reasons for choosing buffet, the type of music they like, the difficulty in accepting buffet and the hope of introducing restaurant features, and then makes a preliminary exploration for factor analysis.[7] [8]

**3.1 College Students' Choice of Dining out**

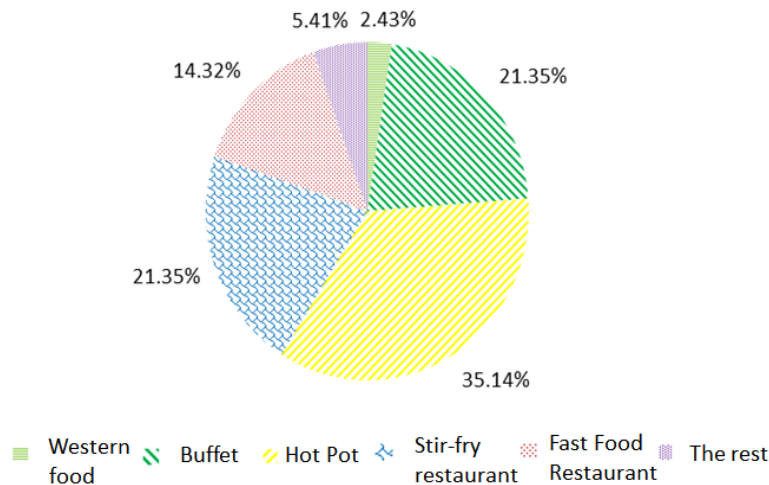


Figure 1. Distribution of Dining Places for College Students.

According to the survey, 35.14% of college students would choose hot pot when eating out, followed by buffet and stir-fry restaurant (21.35%) and fast-food restaurant (14.32%).The number of

people who choose western food and others is relatively small, 5.41% and 2.43% respectively. Therefore, hot pot can be introduced into the cafeteria to attract college students.1

### 3.2 Reasons for College Students to Choose Buffet

Table 3. Multiple Response Frequency Analysis.

Project	Options	Effective		Unit
		Number of Valid Cases	Effective Percentage	
Why choose buffet	Ready to eat.	70	18.3%	53.0%
	Economic incentives.	74	19.4%	56.1%
	A wide variety.	100	26.2%	75.8%
	Suitable for friends.	74	19.4%	56.1%
	Choose the best option for difficulty.	39	10.2%	29.5%
	It's too much trouble to do it yourself.	20	5.2%	15.2%
	Other.	5	1.3%	3.8%
Total		382	100.0%	289.4%

According to the survey, "wide variety" is the most important factor (26.2%) for college students to consider when choosing buffet. "Economic preference", "ready to eat" and "suitable for friends to gather" have similar selection rates, and are also relatively important factors to consider when choosing buffet. Therefore, increasing the supply of buffet food can help the cafeteria attract more college students.

### 3.3 Types of Music Played in the Music Restaurant

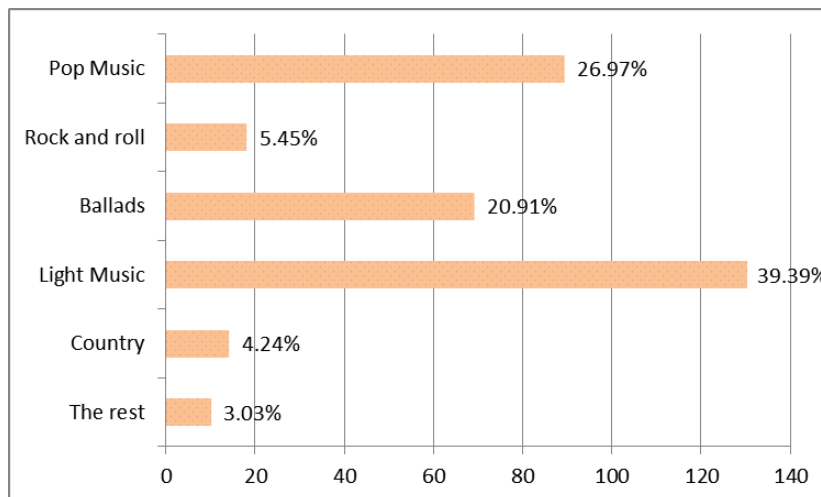


Figure 2. Distribution of Playing Music Preference.

The results show that the number of college students who choose light music is the largest, accounting for 39.39%. Next were Pop music and Ballads, with 26.97 percent and 20.91 percent respectively, rock and country, with 5.45 percent and 4.24 percent respectively. Therefore, music cafeterias should play more light music and pop songs and less violent music such as rock and roll.

### 3.4 Ordering of Acceptance at Buffet

Table 4. Distribution of Unacceptable Situation of Buffet.

Options	3	2	1
Poor sanitation	50	92	15
Raw ingredients	95	34	13

Unreasonable price	10	17	57
Service not available	5	10	54
Slow in filling dishes	1	8	22

There are a total of 161 students who fill in the valid questionnaire, so the first choice is 3 points, the second choice is 2 points, and the third choice is 1 point. The data collected from the above survey can be entered into the formula as follows:

There is  $K \approx 0.361$  difference in sanitary conditions, that is, the proportion of difference in sanitary conditions is 36.1%. Raw ingredients were about 0.379, with the proportion of ready-made ingredients being 37.9%. The price is not reasonable with  $k \approx 0.125$ , that is, the ratio of the price not reasonable is 12.5%. Service not available with  $k \approx 0.092$ , or 9.2% of the time. The rate of slow filling is about 0.042, which means that the rate of slow filling is 4.2%

According to the survey, students pay the most attention to the freshness of food materials (37.9%), the second most attention to sanitary conditions (36.1%), and less attention to other services (30% less). Therefore, food raw materials and poor sanitary conditions are particularly important in the eyes of customers, and food raw materials are the most intolerable for customers.

### 3.5 College Students' Expectations of the Restaurant

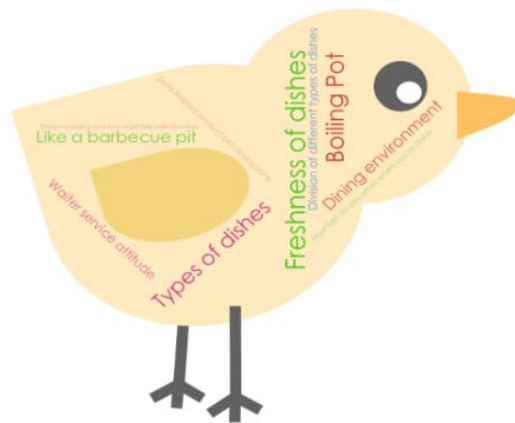


Figure 3. Cloud Image of Customers' Expectation of Buffet.

The survey shows that college students expect the restaurant to pay the most attention to the freshness of dishes and the dining environment of the restaurant. At the same time, college students hope that the cafeteria can introduce more kinds of dishes, in the choice of dining equipment in the hope that the restaurant can be equipped with a barbecue table and cooking pot. In addition, college students are also very concerned about the service attitude and ability of waiters. Therefore, cafeteria can attract college students' consumption by providing fresh dishes and beautiful dining environment.

### 4. Buffet Preference Analysis Based on Factor Analysis Model

Factor analysis was carried out with the degree of attention to different indicators when students chose cafeteria. The above has passed the KMO and Bartlett 'test.

As shown in the figure, the gravel diagram shows the factors. It can be seen from the gravel diagram that the slope line is very flat after the sixth factor, so it is more suitable to retain the six factors.

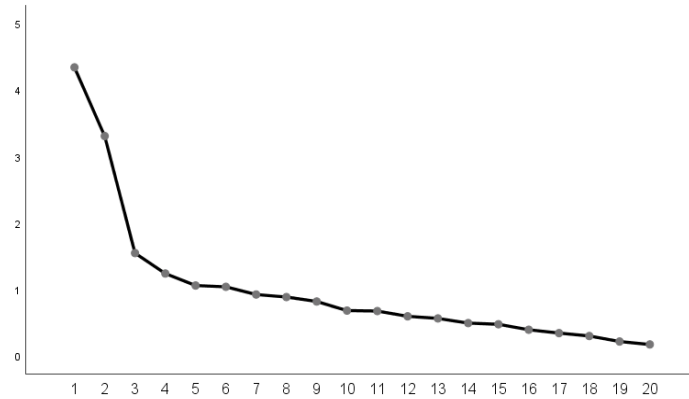


Figure 4. Gravel Figure.

The following table intercepts all of the data of factor analysis variance interpretation. As can be seen from the following table, the characteristic values after rotation are 2.907, 2.898, 2.162, 1.764, 1.539 and 1.247, and the explanatory variables are 14.533%, 14.491%, 10.808%, 8.820%, 7.696% and 6.233%, and the cumulative explanatory variables are 14.533%, 29.024%, 39.832%, 48.651%, 56.347% and 62.580%.

Table 5. Total Variance Interpretation of Buffet Choice Factor Analysis.

Composition	Initial eigenvalue			Extract the sum of the squared loads			The sum of the squares of the rotational loads		
	A total of	Percentage of variance	Cumulative %	A total of	Percentage of variance	Cumulative %	A total of	Percentage of variance	The cumulative %
1	4.340	21.702	21.702	4.340	21.702	21.702	2.907	14.533	14.533
2	3.305	16.524	38.225	3.305	16.524	38.225	2.898	14.491	29.024
3	1.544	7.720	45.946	1.544	7.720	45.946	2.162	10.808	39.832
4	1.236	6.179	52.125	1.236	6.179	52.125	1.764	8.820	48.651
5	1.055	5.277	57.402	1.055	5.277	57.402	1.539	7.696	56.347
6	1.036	5.178	62.580	1.036	5.178	62.580	1.247	6.233	62.580
7	.920	4.599	67.179						
8	.882	4.410	71.590						
9	.814	4.071	75.661						
10	.678	3.391	79.052						
11	.671	3.356	82.408						
12	.592	2.958	85.366						
13	.560	2.802	88.168						
14	.490	2.449	90.617						
15	.472	2.358	92.975						
16	.390	1.950	94.925						
17	.339	1.697	96.622						
18	.295	1.476	98.098						
19	.212	1.062	99.160						
20	.168	.840	100.000						

The final conclusion can be obtained as shown in the following table.

Table 6. Conclusion of Factor Analysis.

	Item	Variance	Cumulative Variance	Component (Extracted Factor)					
				Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Hardware and software conditions	A variety of dishes	14.533%	14.533%	0.713					
	The lighting is soft and the chairs and tables are high			0.665					
	Preference for meat			0.659					
	Play the music			0.574					
	Cost effective			0.554					
	Barbecue and hot pot			0.466					
	The transportation is convenient			0.418					
Hygiene and waiting factors	Accept water stains on table	14.491%	29.024%		0.858				
	Accept that the table smells of lampblack				0.797				
	Accept that food freshness is not enough				0.739				
	Long waiting time				0.596				
The service factor	Poor service attitude	10.808%	39.832%			0.872			
	Poor service capability					0.870			
Food selection factors	Preference for dessert	8.820%	48.651%				0.842		
	Prefer to drink						0.691		
	Preference for cooked food						0.518		
Convenience factors	It is inconvenient to take food	7.696%	56.347%					0.728	
	Tableware is not complete							0.482	
	Slow in filling dishes								0.447
Price factor	Expensive	6.233%	62.580%						0.819

## 5. Conclusion

Buffet is facing severe challenges, only the quality, personalized cafeteria can have a broader space for development. Based on the above findings, this paper gives the following conclusions and Suggestions:

(1) The university student goes out dining the main choice is "the hot pot" "the buffet" the class. The frequency of college students choosing buffets is second only to Hotpot, which shows that there is still a lot of room for the development of buffets among college students, and the first choice and most choice of "hotpot" features can also be introduced by the cafeteria, this adds to the advantage of buffets.

(2) The buffet foods tend to be "meat" of than most, so for consumers of meat is the main food for the buffet, business should be in the fresh degree of meat, a degree of taste and nutrition care, to provide good quality meat will promote the propensity to consume, so retaining old customers, developing new customers.

(3) Respondents have the highest love for "light music" when eating, while other music styles are relatively less popular but also occupy a large proportion of the love for music. Therefore, business should appropriately increase the frequency of playing light music, and at the same time, they should often change the style of playing music.

(4) "Freshness of dishes" is what college students most want the cafeteria to improve. In addition, the improvement of consumer satisfaction can promote the brand awareness effect, create brand praise and promote the generation of new consumers.

(5) Men and women pay the most attention to the buffet's sanitary conditions and freshness of food materials. Therefore, the cafeteria should strengthen the restaurant hygiene, and ensure food safety and health.

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