Art and Performance Letters (2023)
Clausius Scientific Press, Canada

DOI: 10.23977/artpl.2023.040910
ISSN 2523-5877 Vol. 4 Num. 9

The Influence of Consumer Purchasing Factors on Packaging Design Elements of Agricultural Products under E-commerce Platforms—TikTok platform's selection of Northeast rice as an example

Yan Zhuang[1,a], Kamarudzaman Md. lsa[1,b], Khairun Nisa Mustaffa Halabi[1,c], Yu Zhang[2,d,*]

[1]City Graduate School, City University Malaysia, Kuala Lumpur, Malaysia
[2]Jilin Engineering Normal University, Changchun City, Jilin Province, China
[a]zhuangyan820113@163.com, [b]drkamy@gmail.com, [c]khairun.mustaffa@city.edu.my, [d]zhangyu2105@163.com
**Corresponding author*

Keywords: Jitterbug mall; oriental selection; emotional resonance; Packaging Design Elements

Abstract: Research on the purchasing factors of e-commerce users is conducive to accurately grasping the core needs and consumer behavior characteristics of users, so as to formulate a scientific marketing strategy for e-commerce platforms to identify and enhance the core competitive advantages. Due to the different nature and characteristics of the phenomena involved in social research, this paper adopts the qualitative research method of stratified equal probability sampling to obtain the survey samples, and the effective questionnaire recovery rate reaches 89.18%. In view of the obtained data, the consumers in the e-commerce platform purchase factors for ranking, explore the e-commerce platform consumer preferences and apply to packaging design, so as to explore the aesthetic needs of customers. Based on the above analysis, the conclusions obtained are of practical significance for the packaging design of agricultural products on live e-commerce platforms.

1. Introduction

Under the impetus of digital technology, relying on the Internet and digital technology and a large customer use group, live e-commerce breaks the traditional industry model of resources and information asymmetry barriers*[1]*. 2021 end, the founder of New Oriental, launched to help the agricultural business "Oriental Selection" brand to enter the field of live with goods*[2]*. As of November 2022, the number of fans reached 25 million people, of which the anchor Dong Yuhui live room at the same time online more than 80,000 people*[3]*. As of November 30, 2022, the company's operating income of 2.08 billion yuan. 2023 January, the Oriental Selection of the sale of about 60 products *[4]*. Among them, it mainly deals with 13 categories such as food and department stores, outdoor sports, etc. In the product mix, agri-food accounts for more than 50% *[5]*. Based on

the large customer base, the traditional packaging design of agricultural products can no longer meet the aesthetic needs of online customers*[6]*.

2. System and survey program design

The Consumer Purchasing Factor Model (CPFM) proposed by American marketing authority Kotler P. *[7]*, the model analyzes consumer purchase factors from four aspects, namely, socio-cultural factors, economic factors, personal factors and heart factors, and summarizes the theoretical model that determines consumer purchase factors. As in the indicator system in Table 1.

Table 1: Consumer Buying Factor Model (hilip T. Kotler, 2017)

Socio-cultural factors	Economic factors	Personal factors	Psychological factors
Culture and subculture	Consumer income	Age	Motivation
social class	commodity prices and commodity utility	occupation	Learning
reference group		lifestyle	Beliefs and Attitudes

2.1. Data processing and testing

Based on the purpose of the survey, it was determined that the survey contained 2 aspects: basic information of the survey unit, consumer online shopping platform preference for agricultural products and influencing factors. The survey object is the resident population of Changchun City. The survey adopts the probability sampling method combining fixed-class measurement and three-stage sampling, which ensures that equal probability sampling is carried out in the first two stages, so that the probability of each final unit being selected as a sample is the same. The steps are as follows: (1) Stratified sampling. (2) Three-stage unequal probability sampling, which includes PPS sampling, stratified sampling, and systematic sampling. (3) Pre-survey sampling. A total of 75 questionnaires were distributed to the residents of the 25 street neighborhoods included in the sample, and a total of 69 questionnaires were recovered for the pre-sampling survey test and analysis, and the initial questionnaires recovered had good reliability and validity, and did not need to be adjusted. (4) Determination of sample size. Considering the optimal sample size, design effect, non-response rate and other factors, according to the proportion, the actual sample size of Changchun city + new city and suburban areas should be surveyed are 477 and 279 respectively. according to the survey distribution volume to determine the sample size of Changchun city + new city and suburban areas drawn 464, the sample size of the suburbs is 267. a total of 756 questionnaires were distributed, and the number of valid questionnaires was 731, the effective questionnaire recovery rate 89.12%, the effective questionnaire recovery rate 89.12%. The effective questionnaire recovery rate is 89.12%.

2.2. Data processing and testing

For investigating the consumer purchase factors, 16 questions about the factor scale were selected to determine the weighting between these questions. And Cronbach's alpha coefficient was used to test the formal questionnaire data for influencing factors, and the value of the coefficient was 0.912, which shows that the questionnaire is categorized reasonably.

The collected data were input into SPSS system for factor analysis to find out the main factors affecting consumer evaluation among the factors of agricultural packaging design. According to the calculation results, the KMO is 0.932 which is greater than 0.6 and meets the prerequisite

requirements of factor analysis, meaning that the data can be used for factor analysis research. According to the screen diagram in SPSS (Table 2).

Table 2: Factor loading coefficients after rotation

Name	Factor load factor Factorl factor2		Commonality (commonfactor variance)
	Factorl	Factor2	
Q1	0.858	0.415	0.839
Q2	0.879	0.517	0.617
Q3	0.723	0.492	0.763
Q4	0.812	0.407	0.812
Q5	0.832	0.522	0.813
Q6	0.769	0.447	0.791
Q7	0.806	0.417	0.824
Q8	0.812	0.475	0.827
Q9	0.802	0.427	0.819
Q10	0.725	0.42	0.786
Q11	0.832	0.517	0.827
Q12	0.825	0.512	0.834
Q13	0.701	0.476	0.718
Q14	0.835	0.393	0.787
Q15	0.602	0.608	0.731
Q16	0.412	0.797	0.805

Note: The extraction method is Principal Component Analysis, the rotation method is Kaiser Normalized Maximum Variance, and the rotation has converged after 2 iterations.

A total of (Table 3) were extracted from the factor analysis, with eigenroot values greater than 1. The variance explained by the rotation of the 2 factors was 47.376% and 38.265%, respectively, and the cumulative variance explained by the rotation was 86.241%.The rotation was carried out using the maximum variance rotation method (varimax) in order to find out the correspondence between the factors analyzed for consumer purchases of agricultural products.

Table 3: Consumers' factors factors for purchasing agricultural products

Factor 1	Factor 2
Q1 The knowledge of the Origin product	Q8 Price
Q2 Visionary storytelling	Q9 Outer packing
Q3 Branding	Q10 Ease ofuse
Q4 Bilingual product introduction	Q11 Taste
Q5 Introduce the humorous statement of the product	Q12 Origin
Q6 impulse spending	Q13 Logistics
Q7 Emotionalresonance of consumers	Q14Environmental Protection
	Q15 Shelf life of agricultural products
	Q16 The weight of the product

According to the loading coefficients, the indicators belonging to Factor 1 are Q1, Q2, Q3, Q4, Q5, Q7, and the indicators belonging to Factor 2 are Q8, Q9, Q11, and Q12.As shown in (Table 4).

The model of consumer purchasing factors proposed by Kotler P. is expressed in the following way: socio-cultural factors-family, related groups; Economic factors - consumer income,

commodity prices; personal factors - age, lifestyle. Factor 1 reflects socio-cultural factors; Factor 2 is personal emotional factors and price, mainly reflecting factors of personal emotional experience, personal vision and memory, so these two factors play a decisive role in determining the purchasing factors for consumers to buy agricultural products in the Oriental selection.

Table 4: Matrix of component score coefficients

Name	Component	
	Component 1	Component 2
Q1	0.245	0.18
Q2	0.273	0.15
Q3	0.164	-0.18
Q4	0.186	-0.022
Q5	0.205	0.365
Q6	-0.003	0.093
Q7	0.186	0.068
Q8	0.235	0.365
Q9	0.168	0.102
Q10	0.227	0.035
Q11	0.196	0.245
Q12	0.167	0.132
Q13	0.027	0.034
Q14	0.091	0.125
Q15	0.227	0.332
Q16	0.135	0.315

3. Analysis of Oriental Selection Online Produce and Consumer Purchasing Factors

Significant influences among the factors affecting consumer purchases were weighted using factor analysis, using the matrix of component score coefficients to establish the equation of the relationship between the factors and the study items. The composite score is calculated by accumulating the product of the variance explained (normalized) and the factor scores after rotation. The formula for the current data is (47.526 × Factor Score 1.3 + 33.265 × Factor Score 2)/79.790, which ends up as 0.683 × Factor Score 1.2 + 0.417 × Factor Score 2. The results are shown in Table 4. According to Table 4, it can be seen that the top eight of the factors in the importance of consumer purchase of agricultural products factors in descending order are: Q2 longing is the way of narrative (0.273); Q1 the knowledge of product introduction (0.245); Q8 the price (0.235); Q10 the ease of use (0.227); Q5 the humorous expression of the introduction of the product (0.205); Q11 the taste of the product (0.196)); Q7 Emotional resonance of consumers (0.186); Q12 Product origin (0.167).

4. The influence of purchasing factors on packaging design elements

4.1. Imagery of packaging design for agricultural products

From the results of the analysis of consumer purchasing factors, it can be seen that online consumers are more pro to longing for the picture, the introduction of product knowledge with a sense of the picture, humorous packaging design will also bring consumers to buy the internal motivation, and ultimately in the packaging design of agricultural products through the design

elements to achieve the emotional resonance with consumers, by repositioning the online rice packaging design of the layout of the content, you can enhance the adhesion between the consumer and the product, and at the same time to meet the people's aesthetic needs.

4.2. Colors of agricultural packaging

By observing the packaging design of agricultural products in the Oriental Selection network of e-commerce companies, we found that the purchasing group is more inclined to macaroon colors, which are more sweet and make people want to try to taste the impulse, and according to the color preference database established by Lechner, Harrington and Simonoffy globally, it can be seen that people are more inclined to food with warm colors, and in the packaging of agricultural products, people are more inclined to color preference more inclined to nature's inherent plant colors of green and yellow. Agricultural packaging, people more color preference is more inclined to nature's inherent plant colors green, yellow. It becomes evident that when choosing agricultural product packaging, designers can opt for natural colors to enhance consumer appeal.

5. Conclusions and recommendations

This study examines the influence of consumer buying factors on packaging design elements from the perspective of consumer buying factors. It was found that there are two factors that play an important role in the process of consumer purchase of agricultural products, which are: longing as a narrative and the intellectual nature of product presentation. Factors affecting consumers' purchase of agricultural products also provide a theoretical basis for the images in the design, which are: images of longing, the intellectual introduction of the sense of the picture, humorous images, the taste of association, the emotional resonance of consumers, and the origin of the product. Consequently, the packaging design for agricultural products on e-commerce platforms should incorporate greater humanistic elements to attract consumers effectively. This paper aims to delve deeply into the purchase intentions of online consumers and offer clear guidance for enhancing the design of agricultural product packaging on e-commerce platforms.

References

[1] Principles of Marketing (17th Global Edition) hilip T. Kotler /hilip T. Kotler Gary Armstrong 2017-7-27 isbn: 9781292220178

[2] Liu Hualing, Wang Xirui. Journal of Internet and Digital Economics ISSN: 2752-6356 Research and Prospect Analysis on User Experience of "Live E-commerce" in the Background of Digital Economy--Taking Shanghai Shake E-commerce Platform Users as an Example Platform Users as an Example 201620

[3] Ma Fangfang, Ding Zhiwei. Spatial Differentiation and Influencing Factors of the Development of Shake Shack Live Streaming Carrying Industry in China[J]. Economic Geography Physics, 2021, 41(12):22-32 Public Health, Safety, and Sustainable Resilient Cities 2021

[4] Hendrik N.J. Schifferstein , Anna Fenko , M.A. Desmet , David Labbe , Nathalie Martin .Influence of package design on the dynamics of multisensory and emotional food experience Food Quality and Preference 27 (2013)

[5] Arson Cheric, Pinar. (2004). Is Alice still in Wonderland? Submitted Work Design and Emotion Conference held in Ankara, Türkiye from July 12 to 14.

[6] Results of this study, T. E.I. Larisas, http://www.wfdt.teilar.gr/material/neoi_agrotes/SYSK_AGR_PROIONTWN.pdf

[7] Susan E (1994). "Packaging and the Environment" (revised edition). Susan E. M. Selke of the School of Packaging, Michigan State University, East Lansing, MI, USA. Technomic Publishing Co. Inc. (1994), ISBN 1-56676-104-2, 258 pp