



Modelling Green Chinese Value-Attitude Enhancing New First-tier Cities' Furniture Consumption Market

Chen Ling^{1*} and Prin Laksitamas²

^{1,2}Doctor of Business Administration Program in Marketing, Siam University, Thailand

(Received: March 11, 2024; Revised: August 7, 2024; Accepted: August 19, 2024)

Abstract

The demand for green furniture was rising globally, driven by consumers' increasing environmental and health consciousness. This trend included PRC's new first-tier cities market which represents the rise of China's emerging cities in the future. This study aimed to examine the key value factors that influence Chinese consumers' consumption behavior and analyze the mediating role of attitude between Green Chinese values and consumption behavior. The quantitative research that employed the instrument was a questionnaire. After collecting data from four major Chinese new first-tier cities (Chengdu, Hangzhou, Xi'an, and Wuhan), 832 questionnaires were collected and used for data analysis. The 416 questionnaires were distributed online via the wjx platform (a professional online questionnaire collection platform in the PRC) and 416 questionnaires were distributed offline to furniture malls directly in the target cities. The target samples were consumers aged 15 years and up who have experience in purchasing green furniture products in PRC's four new first-tier cities. Confirmatory factor analysis (CFA), path analysis, and structural equation modeling (SEM) were conducted to test hypotheses using SPSS version 23.0 and AMOS version 22.0.

The result of this study showed that product value and eco-friendly system value had a positive effect on attitude. Attitude had a positive effect on consumption behavior. In addition, product value, personal value, and eco-friendly system value significantly positively affect consumption behavior. Chinese consumers' green consumption behavior was positively impacted by product value and eco-friendly system value through attitudes as the mediator. Furthermore, there was no empirical evidence found that personal value had a positive effect on attitude in this study. Particularly, this study contributes to the development of the Chinese consumer's value-attitude causal model which enhances its green furniture consumption behavior. The strategic recommendations for Chinese consumers are accumulating positive attitudes, cultivating green furniture consumption lifestyles, and improving consumption capabilities. The strategic recommendations for enterprises are enhancing the functional, health, and service value of green furniture products and for government organizations are enhancing the dissemination of knowledge about green furniture products, promoting the use of new technologies, cooperating with various private organizations and institutions, and implementing nationally authoritative green furniture certification and green label systems.

Keywords: 1) Green Furniture 2) Consumer Values 3) Attitude 4) Green Consumption Behavior 5) PRC New First-Tier Cities

¹ Doctoral Student, Department of Marketing; E-mail: chenlingth2007@gmail.com (Corresponding Author)

² Assistant Professor, Department of Marketing; E-mail: prinsiam@gmail.com

Introduction

Furniture has become a necessity to improve the quality of life for today's customers with increasing environmental and health consciousness, green furniture products which are more friendly to the environment and less harmful to consumers' physical health are becoming mainstream worldwide gradually. Over the last half-century, human consumption of natural resources has surpassed that of all preceding eras combined. The excessive consumption of resources and the low environmental awareness of consumers in the past few decades have gradually led to some environmental problems. These environmental issues have made consumers increasingly concerned about the green and sustainable attributes of products. Green products, including green furniture, can bring various benefits to the natural environment, society, businesses, and consumers. These benefits include: 1) Environmental benefits. Green furniture is made from organic and biodegradable materials, with the aim of using the least number of non-renewable resources and toxic chemicals to produce them. This helps reduce greenhouse gas emissions and prevents environmental pollution and climate change. The longer lifespan of green furniture means that it will not become waste and further pollute the environment in the short term. Additionally, green furniture reduces the threat of excessive resource use and encourages the utilization of natural resources for production. 2) Social benefits. Green products create more job opportunities. According to research by the International Renewable Energy Agency

(IRENA), the renewable energy industry created nearly 500,000 new job opportunities in 2017, an increase of 5.3% from 2016. It is predicted that this number will increase to 16 million by 2030 if the demand for green products continues to grow (Das, 2023, p. 1). Therefore, with the development of green products, not only the environment but also the economic condition will improve. 3) Business benefits. As there are already consumers in the market who are inclined to buy or only buy green furniture, businesses can access a new market of green consumers by developing green furniture products. Moreover, in the current market environment, the green attributes of a product can increase its competitive advantage and contribute to improving the brand's public image. Additionally, companies that produce green products can attract loyal customers who prefer environmentally friendly options over traditional non-eco-friendly products. 4) Consumer benefits. In the long term, green furniture is cost-effective products that help consumers save money due to its minimal use of resources and energy and have a longer lifespan. Furthermore, since green furniture is made from materials that do not contain harmful chemicals, it often improves consumers' physical and mental health. All of these reasons, along with the attributes that conventional furniture lacks, make green furniture increasingly important in today's consumer market.

In the People's Republic of China (PRC), the world's second-largest economy, there is an increasing demand for green furniture products in recent decades as well (Xu, Wang and



Yu, 2020, pp. 4-5); Shahsavar, Kubeš and Baran, 2020, pp. 3-4). Grand View Research reported that the total worldwide green furniture market value exceeded \$36.9 billion in the year 2020 and continues to expand at a substantial compound annual growth rate (CAGR) of approximately 6.8% (Eco-friendly furniture market analysis report, 2019). If use of this number, the total worldwide investment in green furniture will likely reach \$59.82 billion in the year 2027. In the People's Republic of China (PRC), the world's second-largest economy, the market value of the green furniture sector is expected to reach \$10.5 billion by 2027, growing at 8.5% CAGR (Eco-friendly furniture - global market trajectory & analytics, 2021).

Traditionally, four well-known PRC's first-tier megacities notably Beijing, Shanghai, Guangzhou, and Shenzhen play crucial roles in political, social, and economic activities (Li, Long and Chen, 2018, p. 302). However, it is reasonable for a big country with a large population, such as the PRC, to have several central cities located in different regions (Arshad, Hu and Ashraf, 2018, pp. 75-92). New first-tier cities concept was proposed in this context. These cities with increasing importance as they are considered with the greatest potential to become new metropolise centers in the future. There are only a few research focused on a new first-tier cities market in PRC while most studies are conducted in Western developed countries. From the standpoint of product categories, the bulk of studies focus on general green products, organic food, eco-tourism, and green clothing are some popular products in the research field. Research on consumer

perceptions or behaviors toward specific green furniture has been limited. Moreover, existing studies mostly lack empirical research on the modern PRC comprehensive set of customer value systems, particularly, from internal personnel qualitative and analytical perspectives in the furniture industry (Le-Anh and Nguyen-To, 2020, pp. 1-2). And there exists controversy within the academic world regarding whether attitude can predict consumption behavior (Young, et al., 2010, p. 20-31; Zhao, et al., 2014, pp. 143-151).

The current study attempts to validate this attitude-behavior gap in green furniture products practice in PRC's first-tier cities market. To address these knowledge gaps in academia and create long-term benefits for the furniture industry, consumers, and environment, a deeper grasp of the green Chinese value-attitude model to enhance the furniture consumption market in new first-tier cities is needed.

Research Objectives

Below are the pertaining objectives of the current study:

1. To study Green Chinese values, attitudes and to examine the value factors that influence Chinese consumers' consumption behavior.

2. To analyze the mediating role of attitude in the relationship between Green Chinese values and consumption behavior.

3. To present and develop the Chinese consumer's value-attitude causal model which enhances its green furniture consumption behavior in the new first-tier cities' Chinese market.

Literature Review

The environmental resources of the world are depleting slowly, and that leads to businesses and consumers today can no longer ignore these rising concerns (Dubey, Gunasekaran and Ali, 2015, pp. 120-132). Enhancing green consumption has been proven to be an effective approach to addressing today's environmental and resource challenges (Tavares, 2021, p. 5). In the furniture sector, green furniture which is less harmful to the environment and consumer's physical health is become mainstream gradually in recent decades. Previous research has found that consumers make purchasing decisions based on their judgments of the values of products or services (Graf and Maas, 2008, pp. 1-8; Ling and Laksitamas, 2022, p. 1-10). Lee, Levy and Yap (2015, p. 598) cite Sheth, Newman and Gross (1991, pp. 159-163) "Consumption values define five types of consumption values: functional value, social value, emotional value, epistemic value, and conditional value". There is some evidence suggesting that consumption values can influence consumption behaviors. According to Han, et al. (2017, p. 194) functional value has impacted consumers' intentions to purchase electric vehicles functionally. Health factor is also considered as one of the important determinants when consumers make a consumption decision. Xu, et al. (2020, p. 5) found that physical health concerns have a lush impact on consumers' purchase intentions for authentic green furniture products in the PRC. Consumers may obtain a type of value from the service. Kotler, et al. (2019, pp. 639-670) pointed out that customers prefer to interact

and communicate, they are service-oriented and as the center of various businesses today. Service quality has a significant effect on customer satisfaction and also on their purchase intention toward green products (Hsu, et al., 2016, pp. 372-377). Rahnama and Rajabpour (2017, pp. 6-7) revealed that the epistemic value which was perceived as utility gained from an alternative's choices to spark interest, generate novelty, and/or satisfy the demand for epistemic knowledge had a significant favorable effect on green product selection in Iran (Lee, Levy and Yap, 2015, pp. 602-603). Emotional value is measured by how consumers feel about products. When promoting green products in emerging markets, emotional value is a crucial element to consider when purchasing (Khan and Mohsin, 2017, pp. 65-74). The emotional value of green products has a strong positive influence on customer choice behavior (Lin and Huang, 2012, pp. 15-17). The social value is associated with acceptance and approval of self-image improvement on the green customer's behavior (Sweeney and Soutar, 2001, pp. 216-217; Finch, 2006, pp. 68-76). According to Gonçalves, Lourenço and Silva's (2016, p. 1490) research, social value has a positive impact on green product buying behavior in Portuguese marketplaces. Environmental value or environmental consciousness relates to whether or not customers are aware of environmental issues and the effort they are willing to address those problems (Wang, et al., 2016, pp. 123-143). In India, environmental value has been demonstrated to have a positive impact on environmentally friendly consumer behavior (Biswas and Roy, 2015, pp. 338-339). The



research evidence of Xu, Wang and Yu (2020, p. 135275) also revealed that environmental awareness influences customer attitudes and willingness to pay, as well as consumer intentions to acquire green furniture. The concept of technology value describes as consumer's perceived and actual benefits generated by the use of technology (Wright, 2015, p. 4846). Take augmented reality (AR) as an example, customers can use AR mobile applications to display a virtual 3D model of furniture live, as well as view the furniture from all angles and orientations. Poushneh and Vasquez-Parraga (2017, p. 233) reported in their research that virtual objects as well as the information provided by AR can increase user satisfaction and then further lead to an increasing willingness to purchase behaviors.

In addition to consumer values mentioned above, attitudes have also been found to be related to consumer consumption behavior by many previous scholars (Mosavi and Ghaedi, 2012, pp. 1950-1959). Attitude is an enduring psychological tendency toward to certain objective (people, ideas, emotions, products, or events., etc.) (Kim, Hall and Kim, 2020, pp. 797-815). Consumer behaviorists believe that customer's attitude can predict their consumption patterns and behaviors (Zhao, et al., 2014, pp. 143-151). Another group of scholars further indicated that attitude mediates between customer value and their consumption behavior value (Kim and Chung, 2011, p. 43; Im, Bhat and Lee, 2015, pp. 170-171). This research will analyze its relationship with values and consumption behavior by focusing on three dimensions: cognitive, affective, and conative.

And Chinese consumers' green consumption behavior will be looked at from three dimensions: willingness to buy, willingness to recommend, and willingness to repurchase green furniture products to further evaluate Chinese consumers' loyalty level toward green furniture products.

Conceptual Framework

The framework in this study is embedded in three underpinning theories, which are: the value-attitude-behavior hierarchy theory (Homer and Kahle, 1988, p. 642; Cheung and To, 2019, p. 148), consumption value theory (Sheth, Newman and Gross, 1991, pp. 641-645; Lee, Levy and Yap, 2015, pp. 597-602), and the theory of planned behavior (TPB) initiated by Ajzen (1991, pp. 179-211). From the literature review related to the key Green Chinese values factors that affect consumers' attitudes and consumption behavior toward green furniture, the researcher has developed a conceptual framework for the research details as shown in Figure 1.

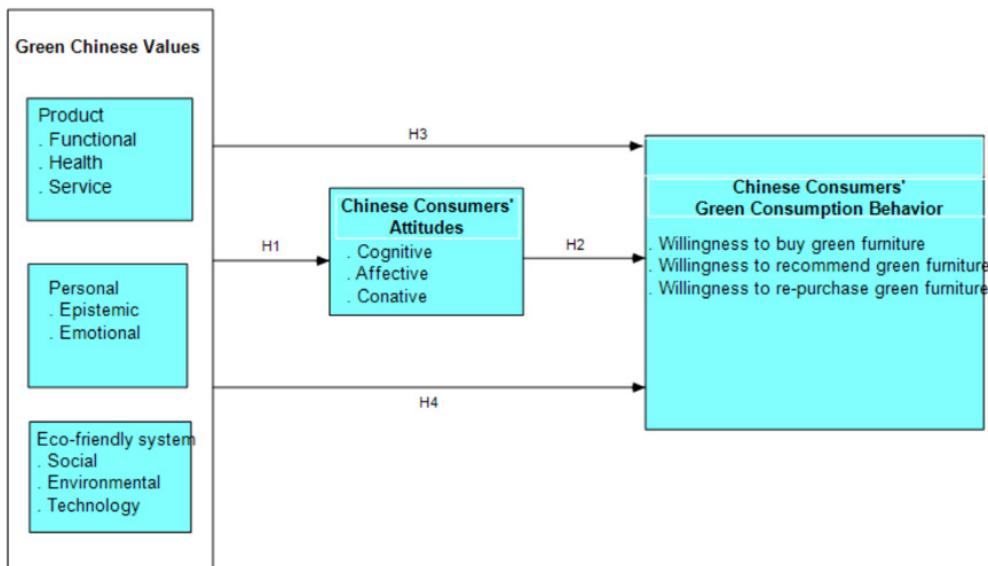


Figure 1 The research framework for Modelling Green Chinese Value-Attitude Enhancing New First-tier Cities' Furniture Consumption Market was developed based on (Khan and Mohsin, 2017, pp. 65-74; Choe and Kim, 2018, pp. 1-10; Yu and Lee, 2019, p. 7; Xu, et al., 2020, p. 3; Wang, Shen and Chu, 2021, p. 4; Sivapalan, et al., 2021, pp. 699-715)

Research Hypothesis

Reviewing the past literature and the causal model framework of the key value factors affecting Chinese consumers' attitudes and green consumption behavior, the following hypotheses were made by the researcher:

H1: Green Chinese values have positively affected Chinese consumers' attitudes.

H1a: Product values (functional, health, and service) have positively affected Chinese consumers' attitudes.

H1b: Personal values (epistemic and emotional) have positively affected Chinese consumers' attitudes.

H1c: Eco-friendly system values (social, environmental, and technology) have positively affected Chinese consumers' attitudes.

H2: Chinese consumers' attitudes (Cognitive, affective, and conative) have positively affected Chinese consumers' consumption behavior.

H3: Green Chinese values have positively affected Chinese consumers' green consumption behavior.

H3a: Product values (functional, health, and service) have positively affected Chinese consumers' green consumption behavior.

H3b: Personal values (epistemic and emotional) have positively affected Chinese consumers' green consumption behavior.

H3c: Eco-friendly system values (social, environmental, and technology) have positively affected Chinese consumers' green consumption behavior.

H4: Chinese consumers' attitudes mediate the relationship between Chinese consumers' values and Chinese consumers' green consumption behavior.

H4a: Chinese consumers' attitudes mediate the relationship between product value and Chinese consumers' green consumption behavior.



H4b: Chinese consumers' attitudes mediate the relationship between personal value and Chinese consumers' green consumption behavior.

H4c: Chinese consumers' attitudes mediate the relationship between eco-friendly system value and Chinese consumers' green consumption behavior.

Research Methodology

1) Population and sample size

The population is consumers aged 15 and up who have previously purchased green furniture and live in four targeted PRC's new first-tier cities (Chengdu, Hangzhou, Xi'an, and Wuhan). In this study, the researcher used 20 cases (Jackson, 2003, p. 129) per observation per indicator variable in setting a sufficient number of samples for SEM analysis. This study was designed as 41 questions, thus, the total target sampling size would be 820 (41x20) questionnaires using this guideline. Regarding the specific number of samples for each target city, as the proportion of the target population is Chengdu (36%), Hangzhou (21%), Xi'an (22%), and Wuhan (21%), use this weight, the researcher can get the number of questionnaires need to be collected from each city will be Chengdu 295 questionnaires, Hangzhou 173 questionnaires, Xi'an 178 questionnaires, and Wuhan 174 questionnaires respectively. However, the author finally collected 832 questionnaires (Chengdu 300 questionnaire, Hangzhou 176 questionnaire, Xi'an 180 questionnaire, and Wuhan 176 questionnaire) which is 1.5% more questionnaire collected than initial plan 820 questionnaire. Given that the proportion of the

questionnaires remained consistent with the author's expectation (Chengdu 36%, Hangzhou 21%, Xi'an 22%, and Wuhan 21%), the author decided to use the actual 832 questionnaires for structural equation modeling (SEM) data analysis.

2) Research Tool

This current research identified the key Green Chinese values (product value, personal value, eco-friendly system value) that are affected by Chinese consumers' attitudes and consumption behavior toward green furniture in the new first-tier cities' market. The validity was measured by the Index of Item-Objective Congruence (IOC) using the formula below (R refers to the total score of the expert validity assessment and N refers to the number of experts) to ensure the IOC score is higher than 0.60 to meet the content validity requirement. This is based on Vonglao's (2017, p. 340) suggestion that "the criterion used for selecting a particular strategy is its IOC higher than 0.60". IOC refers to the congruence between the strategies and the theory, the score =1 means a certainty that there is congruence between strategies and objectives theory, the score = 0 means uncertainty if there is congruence between the strategies and the theory, the score = -1 means certainty that there is no congruence between strategies and objectives theory. In this process, the questionnaire was checked by nine professional experts from a multinational furniture company that has green furniture product category, detailed information of them as one chief executive officer (CEO), one customer service manager, one sales manager, one marketing manager,

two customer service staff, two sales staff, and one logistic & assembling staff. The IOC score is ranged from 0.67 to 1 in this study, so, it has passed the congruence requirement between strategies and objectives. Before the main survey, 50 try-out tests (25 offline and 25 online) were made to modify the survey instruments.

$$IOC = \frac{\Sigma R}{N}$$

After the validity of the questionnaires was passed, the researcher tested the reliability of the questionnaire by using the index of Cronbach's Alpha (α , or coefficient alpha) >0.6 to ensure the questionnaire's internal consistency. As indicated by Kütükçü, et al. (2021, pp. 2304-2310), a Cronbach's alpha value between 0.60 and 0.79 is deemed quite reliable, while a value of 0.80 or higher is considered highly reliable. In the present study, Cronbach's alpha values ranged from 0.601 to 0.823, all exceeding the threshold of 0.6, thereby affirming their acceptability. There are a total of 34 observed variables used to measure 10 latent variables. The product value has 11 items and obtained a Cronbach's alpha value of 0.667. The personal value has 5 items and obtained a Cronbach's alpha of 0.717. The eco-friendly system included 11 observed variables, with a Cronbach's

alpha value of 0.823. Attitude included 4 observed variables, and got a Cronbach's alpha as 0.601. Consumption behavior has 3 items, and Cronbach's alpha was 0.604. As attitude and consumption behavior are both with less than 10 items, acceptable Cronbach's alpha was set as equal to or greater than 0.6, thus, these two variables meet the reliability statistics request (see Table 1). As per the data presented in Table 2, the Kaiser-Meyer-Olkin (KMO) for all dimensions under investigation in this study is 0.948, surpassing the recommended threshold of 0.7. Additionally, the significance level of Bartlett's test of sphericity was determined to be 0.000, which is less than the conventional threshold of 0.05 (Pallant, 2007, pp. 110-120). Consequently, the current study adheres to the stipulated criteria of KMO and Bartlett's Test for conducting factor analysis. The quantitative research used confirmatory factor analysis (CFA) to confirm significant independent variables in the model, path analysis to check the mediating role of attitudes, and structural equation modelling (SEM) to test the hypotheses and check the causal relationship among the variables using SPSS version 23.0 and AMOS version 22.0.

Table 1 Cronbach's alpha (reliability statistics) for variables in the model

Variables	Number of items	Cronbach's Alpha
Product value	11	0.667
Personal value	5	0.717
Eco-friendly system value	11	0.823
Attitude	4	0.601
Consumption behavior	3	0.604

**Table 2** Summary of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.948
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	.000

3) The questionnaire's design

The quantitative research will use self-administered questionnaires. The questionnaires can be divided into four parts. Part one is the basic information of respondents. Part two, factors influence Green Chinese values toward green furniture consumption. Part three, factors influence attitudes toward green furniture consumption. Part four, factors that influence on consumption behavior of Chinese consumers toward green furniture. The original survey instrument comprised 41 statements. Likert five-point Scale (5 - Point Scale) was used in the study.

4) Research design and data collection

This research was equipped with qualitative and quantitative mix methodology. The assessment of green Chinese values, attitudes, and consumption behaviors was established through a procedure of literature review, semi-structured interviews, an online pilot test, and then the primary survey. A large-scale 832 main survey be conducted to gather information from the target four new first-tier cities (Chengdu, Hangzhou, Xi'an, and Wuhan). 416 paper-based offline surveys collected the data from furniture malls in target cities directly, and 416 online questionnaires were sent through wjx (an online questionnaire collection platform in the PRC). Stratified sampling that is based on four cities' proportion from the total

population was selected as the method to select relevant samples for quantitative analysis.

Results

1) Descriptive statistics

Of the 832 respondents from PRC's four new first-tier cities (Chengdu, Hangzhou, Xi'an, and Wuhan), 36% were collected from Chengdu (300 respondents), 58% of respondents were females and 42% were males. Over half of the respondents (51%) were 30–44 years old and 44% of them were 15–29 years old. Most respondents (82%) had a bachelor's degree, and 45% of respondents reported that they made more than 7,001 yuan per month. Many respondents (50%) were married and with one child.

2) Confirmatory factor analysis of Chinese consumers' green furniture consumption behavior

In the present study, an examination of the measurement model involved the application of confirmatory factor analysis (CFA) before embarking on a path analysis of the structural model. The primary objective of factor analysis is to ascertain the number and nature of factors accounting for variance and covariation among a set of indicators. Confirmatory factor analysis was performed using Amos version 22.0. The assessment of model fit in CFA is imperative to gauge the alignment

of the proposed measurement model with the data (Kline, 2023, pp. 191-192). Various indices, including the χ^2/df statistic, Root Mean Square Residual (RMR), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI), were reported to evaluate the model fit (Hair, et al., 2010, pp. 604-724). Table 3 presents the factor loading and goodness-of-fit indices of product value, personal value, eco-friendly system value, attitude, and consumption behavior within the model. The confirmatory factor analysis (CFA) results indicated a satisfactory level of fit for overall fit indices, except the chi-square value ($\chi^2 (832) = 588.767$, $p = 0.207$). Nevertheless,

other fit indices proved to be more informative in assessing the model, considering the sensitivity of the chi-square value to sample size (Choe and Kim, 2018, pp. 4-7). Goodness-of-fit analyses were subsequently conducted for the following indices: CFI = 0.947, TLI = 0.937, RMSEA = 0.037, and GFI = 0.945. The standardized factor loading for each item ranged from 0.400 to 0.688, surpassing the threshold of 0.4. Calculations of the average variance extracted (AVE) yielded values exceeding 0.50 for all variables, confirming convergent validity. Moreover, all composite reliability (CR) values fell between 0.758 to 0.901, surpassing the designated cut-off of 0.7. Consequently, the primary dataset satisfies the criteria for the proposed model.

Table 3 Factor loading and goodness-of-fit indices for the measurement model of Chinese consumers' consumption behavior toward green furniture (n=832)

Unobserved variables	Observed variables	Factor Loading: λ				
		AVE	CR	St. Loading Factor	Z value	P value
Product value	PV1	0.514	0.868	0.521	--	--
	PV2			0.400	7.263	0.000
	PV3			0.434	7.940	0.000
	PV9			0.400	7.498	0.000
	PV10			0.439	7.962	0.000
	PV11			0.431	7.86	0.000
Personal value	PSV1	0.526	0.882	0.558	--	--
	PSV2			0.498	6.861	0.000
	PSV3			0.608	6.101	0.000
	PSV4			0.625	8.156	0.000
	PSV5			0.565	10.416	0.000
Eco-friendly system value	EFV1	0.587	0.901	0.594	--	--
	EFV2			0.598	11.37	0.000
	EFV3			0.569	9.959	0.000
	EFV4			0.564	11.25	0.000



Unobserved variables	Observed variables	Factor Loading: λ				
		AVE	CR	St. Loading Factor	Z value	P value
Eco-friendly system value	EFV5	0.587	0.901	0.498	9.991	0.000
	EFV7			0.518	9.986	0.000
	EFV8			0.471	9.27	0.000
	EFV11			0.482	9.347	0.000
Attitude	ATT1	0.541	0.758	0.479	--	--
	ATT2			0.488	4.954	0.000
	ATT3			0.435	4.138	0.000
	ATT4			0.586	5.574	0.000
Consumption Behavior	CB1	0.562	0.787	0.537	--	--
	CB2			0.531	8.873	0.000
	CB3			0.688	8.105	0.000
Model goodness-of-fit statistics		Acceptable levels Criteria			Hypothesis model	
Chi-square statistic		-	Choe and Kim (2018, p. 187)		588.767	
df		>0	Kline (2023, p. 191)		277	
CMINDF		<3	Kline (2023, p. 192)		2.126	
p-value		>0.05	Kline (2023, p. 191)		p=0.207	
GFI		>0.90	Lee and Kim (2016, p. 4)		0.945	
AGFI		> 0.85	Schermelleh-Engel, Moosbrugger and Müller (2003, p. 52)		0.930	
RMR		< 0.05	Zeynel (2023, p. 137)		0.026	
RMSEA		< 0.05	Tennant and Pallant (2012, p. 3)		0.037	
CFI		>0.90	Vassallo and Saba (2015, p. 12)		0.947	
IFI		>0.90	Yaşlıoğlu and Yaşlıoğlu (2020, p. 15)		0.947	
NFI		>0.90	Yaşlıoğlu and Yaşlıoğlu (2020, p. 11)		0.905	
TLI		>0.90	Shadfar and Malekmohammadi (2013, p. 587)		0.937	
Note: *p<0.05, **p<0.01, ***p<0.001						

Ultimately, the structural equation modeling of Chinese consumers' consumption behavior towards green furniture products in

the new first-tier cities market was scrutinized and delineated in Figure 2.

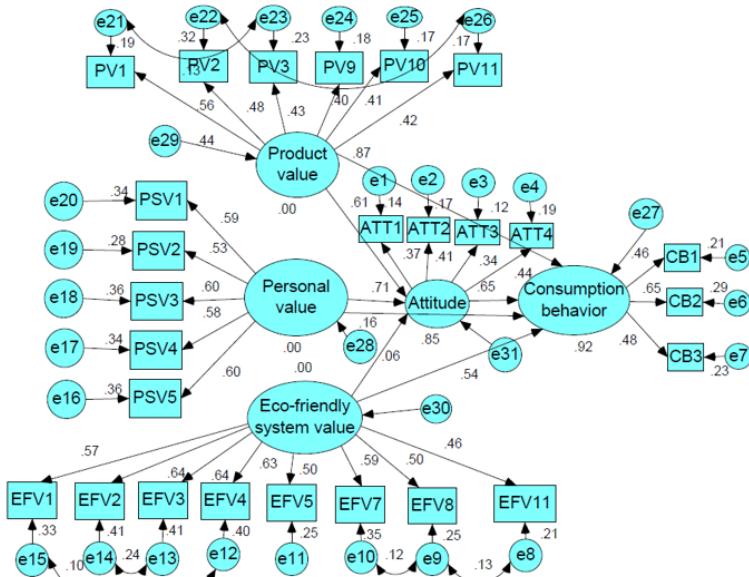


Figure 2 Standardized estimates results of modelling Green Chinese value-attitude enhancing new first-tier cities' furniture consumption market

Chi-square=588.767; df=277>0, p=0.207; RMSEA=0.037<0.05; RMR=0.026<0.05; GFI=0.945>0.90; AGFI=0.930>0.90, IFI=0.947>0.90, NFI=0.905>0.90; CFI=0.947>0.90; TLI=0.937>0.90; CMIN/DF=2.126<3.

3) Results of hypotheses testing

This study examined the value factors that influence Chinese consumers' consumption behavior and analyzed the mediating role of attitude. The proposed hypotheses H1, H2,

H3, and H4 were tested using path analysis in AMOS version 22.0. The detailed hypotheses testing results for H1 to H4 can be explained in Table 4 with the results of the hypotheses tests

Table 4 Summary of structural paths, total effect, direct effect, indirect effect, and hypothesis testing results (n = 832).

H	From	To	Hypothesis results					
			Total effect	Direct effect	Indirect effect	P-value	Hypothesis relation	Hypothesis support
H1a	PV	ATT	0.605***	0.605***	0.000	0.000	positive	Accepted
H1b	PSV	ATT	0.713	0.713	0.000	0.360	positive	Rejected
H1c	EFV	ATT	0.056***	0.056***	0.000	0.000	positive	Accepted
H2	ATT	CB	0.654*	0.654*	0.000	0.012	positive	Accepted
H3a	PV	CB	0.873**	0.817**	0.056**	0.001	positive	Accepted
H3b	PSV	CB	0.160***	0.160***	0.000	0.000	positive	Accepted
H3c	EFV	CB	0.543*	0.516*	0.027*	0.014	positive	Accepted



H	From	To	Hypothesis results				
			Total effect	Direct effect	Indirect effect	P-value	Hypothesis relation
H4a	PV → ATT → CB		0.873***	0.817***	0.056***	0.000	positive
H4b	PSV → ATT → CB		0.160	0.160	0.000	0.360	positive
H4c	EFV → ATT → CB		0.543*	0.516*	0.027*	0.014	positive

Note: *p<0.05, **p<0.01, ***p<0.001

Conclusion and Discussion

All hypotheses H1, H2, H3, and H4 were subjected to examination through the application of structural equation modeling methodology. Eight out of ten structure paths in the model were statistically significant thus these hypotheses are accepted. Two out of ten paths were statistically insignificant thus this hypothesis is rejected. The results showed that product value exhibited a positive impact on attitude ($\beta = 0.605^*$, $p < 0.05$) and consumption behavior ($\beta = 0.817^*$, $p < 0.05$), leading to the acceptance of these hypotheses. Additionally, the path analysis revealed a positive and significant association between personal value and consumption behavior ($\beta = 0.160^*$, $p < 0.05$), providing support for the hypothesis. Consequently, the hypothesis is accepted. These results are similar to those reported by Gonçalves, Lourenço and Silva (2016, pp. 1487-1490); Han, et al. (2017, pp. 191-195); Liao, Wu and Pham (2020, p. 7461) who argued that product value is a decisive factor that has a significant influence on consumer's attitude and their purchase decisions. Phillips, Asperin and Wolfe (2013, pp. 54-56) also claimed that various consumption values may exert a significant influence in fostering favorable attitudes and affecting consumers' behavioral intention

toward green products.

Additionally, the analysis demonstrated a positive effect of eco-friendly system value on attitude ($\beta = 0.056$, $p < 0.05$), supporting the corresponding hypothesis. This result supported a previous study that consumer choice behavior for green products is positively influenced by both social value and environmental value (Biswas and Roy, 2015, pp. 333-338; Gonçalves, Lourenço and Silva, 2016, pp. 1485-1490; Sadiq, Adil and Paul, 2022, p. 1). The Chinese consumer is concerned about self-image improvement in society and become more and more environmentally conscious nowadays. By contrast, ecology is a reason to change the product ($\lambda = 0.498$), the innovative technology facilitates green furniture purchasing ($\lambda = 0.482$), and the application of new technology in green furniture products boosts its attractiveness ($\lambda = 0.471$) obtain a relatively low connection with eco-friendly system value although there is still a connection there. This is perhaps because Chinese consumers are environmentally conscious individuals, however, do not exhibit a sufficiently resolute inclination to choose alternative products just for environmental reasons; rather, their consumption decisions should be based on a set of comprehensive values. Regarding the

implementation of new technology, while Chinese consumers have become aware of some technologies through media (e.g., newspapers, websites, TV, and social media), green furniture enterprises and marketers have not yet begun widely and fully adopting these innovative technologies toward green furniture products. Therefore, consumers may not be able to use these technologies closely in their daily lives, this may lead to them having just a vague grasp of what these technologies are and how they can benefit them during their consumption process.

Furthermore, evidence from the analysis indicated a positive influence of attitude on consumption behavior ($\beta = 0.654^*$, $p < 0.05$), affirming the hypothesis. This is aligned with previous studies indicating that attitude is one of the most significant factors to predict purchasing behavior (Zhao, et al., 2014, pp. 143-151). If a customer has a positive attitude toward green furniture products, they will have a higher possibility willing to purchase, recommend and repurchase them. This result strongly supported previous studies that types of value factors can influence consumers' attitudes toward green products, and attitudes in turn affect their consumption behaviors (Choe and Kim, 2018, pp. 6-9; ElHaffar, Durif and Dubé, 2020, p. 7).

Regarding to effects of personal value on attitude, as the p -value = $0.360 > 0.05$ indicates it is statistically insignificant leading to the hypotheses were not supported. Based on these results, we accepted the H1a, H1c, H2, H3a, H3b and H3c. We rejected H1b since the p -value is insignificant. The result supported a

previous study that green furniture products have been recognized and obtained great attention from both firms and consumers in recent years (Xu, Wang and Yu, 2020, p. 4). Despite the positive and significant influence of personal value on Chinese consumers' green choice behavior, there is no significant effect was found between personal value and Chinese consumer's attitudes toward green furniture products in this study. That might be because consumers are still confused about what exactly is green furniture and how to identify its authenticity. As asserted by Cheung and Prendergast (2006, pp. 446-447) the prevalence of counterfeit green furniture is widespread in the PRC furniture market. These counterfeit green furniture in turn affects Chinese consumer's emotional value and their attitude toward green furniture products. Improving the current scenario requires that green furniture manufacturers, policymakers, industry associations, third-party testing organizations, and other relevant practitioners must more clearly clarify industry regulations and develop practical measures to make it simple and easy for consumers to recognize and identify authentic green furniture.

Regarding mediates effects of attitude between Chinese consumers' values (product value, personal value, eco-friendly system value) and Chinese consumers' green consumption behavior, it is shown that attitude was partially mediating the relationship between product value and consumption behavior as indirect effects are statistically significant ($\beta = 0.056$, $p < 0.05$). Furthermore, the attitude was also partially mediating the relationship



between eco-friendly system value and consumption behavior ($\beta = 0.027$, $p < 0.05$). Lastly, the attitude was considered not to have a mediation relationship between personal value and consumption behavior as indirect effects are statistically insignificant ($\beta = 0.000$, $p = 0.360 > 0.05$). Based on these results, we accepted the H4a and H4c but rejected H4b.

According to interviews with 9 furniture industry practitioners, the author found that most of these experts agree that today's consumers widely recognize green furniture, however, consumers will not choose to purchase a furniture product solely for its green attributes. Traditional values such as product value (function, health, and service) are still critical value factors that need to be emphasized. The epistemic value, which generates novelty and curiosity while simultaneously providing epistemic knowledge, may need to be promoted more extensively. The use of modern technological tools (e.g., augmented reality, artificial intelligence, QR codes) facilitates the identification of authentic green furniture and makes the home creation procedure more fun, hence contributing to improved consumer choice behavior.

Implication & Recommendation

Based on research findings, the following implications and recommendations are proposed for consumers, enterprises, government officials, and relevant organizations.

Strategy recommendations for consumers: accumulating useful knowledge on green furniture products, fostering a favorable attitude towards the consumption of green furniture, cultivating green furniture consumption

lifestyles, and improving consumption capability.

Strategic recommendations for business enterprises: increasing the overall value of green furniture in terms of functional, health, and service aspects, as well as delivering good quality and courteous service to PRC consumers, highlighting the eco-friendly system value of green furniture, through the explanation of the meanings of social, environmental, and technological values, understanding the antecedents of attitudes such as "product value" and "eco-friendly system value" in this study toward green furniture products for PRC's new first-tier cities consumers, are necessary.

Strategic recommendations to government organizations: the PRC government and policymakers should enhance the dissemination of knowledge about green furniture products, standardize industry guidelines, and promote the use of new technologies for green furniture products, cooperation with various stakeholders, organizations, and institutions are necessary to disseminate green furniture and industry guidelines knowledge and implement innovative technology in the industry, enhancing green furniture promotion, establish clear, unified, simple, convenient, and authoritative standards for green furniture certification and green labels.

Recommendations for Future Research

Suggestions for future research are presented in the following four aspects: future research is encouraged to focus on the upstream of the supply chain stage - green manufacturing in the furniture industry as the research found it is an interesting field during

the study, however, it is not directly related to the research objective then the researcher didn't explore it further. It is suggested that future research conduct a study with a larger group of participants. This study only investigated four essential new first-tier cities: Hangzhou, Wuhan, Chengdu, and Xi'an due to time and financial constraints. Future research is suggested to broaden the scope of the study to include all fifteen new first-tier cities with a larger group of participants. It is recommended

that future research extends the validation of the newly devised scale across a more diverse array of contexts. It is advisable to undertake longitudinal research to gather data over an extended period. Utilizing empirical data from real-life settings to substantiate the causal impact of factors and comprehensively scrutinization the incremental transition process from attitude to consumption behavior could enhance the precision of the research.

Bibliography

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

Arshad, S., Hu, S. and Ashraf, B. N. (2018). Zipf's law and city size distribution: A survey of the literature and future research agenda. *Physica A: Statistical Mechanics and Its Applications*, 492, 75-92.

Biswas, A. and Roy, M. (2015). Leveraging factors for sustained green consumption behavior based on consumption value perceptions: Testing the structural model. *Journal of Cleaner Production*, 95, 332-340.

Ling, C. and Laksitamas, P. (2022). The customer perceived values on green furniture innovation based on 4C theory and practice in PRC. *Journal of Management Information and Decision Sciences*, 25(5), 1-10.

Cheung, M. F. and To, W. M. (2019). An extended model of value-attitude-behavior to explain Chinese consumers' green purchase behavior. *Journal of Retailing and Consumer Services*, 50, 145-153.

Cheung, W. L. and Prendergast, G. (2006). Buyers' perceptions of pirated products in China. *Marketing Intelligence & Planning*, 24(5), 446-462.

Choe, J. Y. J. and Kim, S. S. (2018). Effects of tourists' local food consumption value on attitude, food destination image, and behavioral intention. *International Journal of Hospitality Management*, 71, 1-10.

Das, P. (2023). **What is a green product?**. Retrieved February 12, 2023, from <https://www.feedough.com/green-product/>

Dubey, R., Gunasekaran, A. and Ali, S. S. (2015). Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: A framework for green supply chain. *International Journal of Production Economics*, 160, 120-132.



ElHaffar, G., Durif, F. and Dubé, L. (2020). Towards closing the attitude-intention-behavior gap in green consumption: A narrative review of the literature and an overview of future research directions. *Journal of Cleaner Production*, 275, 122556.

Eco-friendly furniture - global market trajectory & analytics. (2021). **Eco-friendly furniture - global strategic business report**. Retrieved April 11, 2021, from [https://www.researchandmarkets.com/reports/5302975/eco-friendly-furniture-global-markettrajectory?utm_source=CI&utm_medium=PressRelease&utm_code=hdqwkb&utm_campaign=1539445+-+Global+Eco-Friendly+Furniture+Industry+\(2020+to+2027\)+-+Market+Trajectory+%26+Analytics&utm_exec=jamu273prd](https://www.researchandmarkets.com/reports/5302975/eco-friendly-furniture-global-markettrajectory?utm_source=CI&utm_medium=PressRelease&utm_code=hdqwkb&utm_campaign=1539445+-+Global+Eco-Friendly+Furniture+Industry+(2020+to+2027)+-+Market+Trajectory+%26+Analytics&utm_exec=jamu273prd)

Eco-friendly furniture market analysis report. (2019). **Eco-friendly furniture market size, share & trends analysis report, 2023 – 2030**. Retrieved March 25, 2019, from <https://www.grandviewresearch.com/industry-analysis/eco-friendly-furniture-market>

Finch, J. E. (2006). The impact of personal consumption values and beliefs on organic food purchase behavior. *Journal of Food Products Marketing*, 11(4), 63–75.

Gonçalves, H. M., Lourenço, T. F. and Silva, G. M. (2016). Green buying behavior and the theory of consumption values: A fuzzy-set approach. *Journal of Business Research*, 69(4), 1484-1491.

Graf, A. and Maas, P. (2008). Customer value from a customer perspective: A comprehensive review. *Journal Für Betriebswirtschaft*, 58, 1-20.

Han, L., Wang, S., Zhao, D. and Li, J. (2017). The intention to adopt electric vehicles: Driven by functional and non-functional values. *Transportation Research Part A: Policy and Practice*, 103, 185-197.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2010). **Multivariate data analysis** (7th ed.). Kennesaw: Pearson Prentice Hall.

Homer, P. M. and Kahle, L. R. (1988). A structural equation test of the value-attitude-behavior hierarchy. *Journal of Personality and Social Psychology*, 54(4), 638-646.

Hsu, W. C., Huang, K. I., Hsu, S. M. and Huang, C. H. (2016). A study of behavioral model on green consumption. *Journal of Economics, Business and Management*, 4(5), 372-377.

Jackson, D. L. (2003). Revisiting sample size and number of parameter estimates: Some support for the N: q hypothesis. *Structural Equation Modeling*, 10(1), 128-141.

Im, S., Bhat, S. and Lee, Y. (2015). Consumer perceptions of product creativity, coolness, value and attitude. *Journal of Business Research*, 68(1), 166-172.

Khan, S. N. and Mohsin, M. (2017). The power of emotional value: Exploring the effects of values on green product consumer choice behavior. *Journal of Cleaner Production*, 150, 65-74.

Wright, J. (2015). **Encyclopedia of information science and technology** (3rd ed.). Hershey: IGI Global.

Kim, M. J., Hall, C. M. and Kim, D. K. (2020). Predicting environmentally friendly eating out behavior by value-attitude-behavior theory: does being vegetarian reduce food waste?. *Journal of Sustainable Tourism*, 28(6), 797-815.

Kim, H. Y. and Chung, J. E. (2011). Consumer purchase intention for organic personal care products. *Journal of Consumer Marketing*, 28(1), 40-47.

Kline, R. B. (2023). *Principles and practice of structural equation modeling* (4th ed.). New York: Guilford publications.

Kotler, P., Keller, K. L., Brady, M., Goodman, M. and Hansen, T. (2019). *Marketing management* (4th European ed.). Harlow: Pearson Education.

Kütükcü, E. Ç., Çakmak, A., Kinaci, E., Uyaroglu, O. A., Yağlı, N. V., Güven, G. S., et al. (2021). Reliability and validity of the Turkish version of post-COVID-19 functional status scale. *Turkish Journal of Medical Sciences*, 51(5), 2304-2310.

Le-Anh, T. and Nguyen-To, T. (2020). Consumer purchasing behaviour of organic food in an emerging market. *International Journal of Consumer Studies*, 44(6), 563-573.

Lee, C. K., Levy, D. S. and Yap, C. S. F. (2015). How does the theory of consumption values contribute to place identity and sustainable consumption?. *International Journal of Consumer Studies*, 39(6), 597-607.

Lee, H. S. and Kim, C. (2016). Structural equation modeling to assess discrimination, stress, social support, and depression among the elderly women in South Korea. *Asian Nursing Research*, 10(3), 182-188.

Li, Q., Long, R. and Chen, H. (2018). Differences and influencing factors for Chinese urban resident willingness to pay for green housings: Evidence from five first-tier cities in China. *Applied Energy*, 229, 299-313.

Liao, Y. K., Wu, W. Y. and Pham, T. T. (2020). Examining the moderating effects of green marketing and green psychological benefits on customers' green attitude, value and purchase intention. *Sustainability*, 12(18), 7461.

Lin, P. C. and Huang, Y. H. (2012). The influence factors on choice behavior regarding green products based on the theory of consumption values. *Journal of Cleaner Production*, 22(1), 11-18.

Pallant, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows* (3rd ed.). Maidenhead: Open University Press.

Phillips, W. J., Asperin, A. and Wolfe, K. (2013). Investigating the effect of country image and subjective knowledge on attitudes and behaviors: US upper midwesterners' intentions to consume Korean food and visit Korea. *International Journal of Hospitality Management*, 32, 49-58.

Poushneh, A. and Vasquez-Parraga, A. Z. (2017). Discernible impact of augmented reality on retail customer's experience, satisfaction and willingness to buy. *Journal of Retailing and Consumer Services*, 34, 229-234.



Rahnama, H. and Rajabpour, S. (2017). Identifying effective factors on consumers' choice behavior toward green products: The case of Tehran, the capital of Iran. *Environmental Science and Pollution Research*, 24(1), 911-925.

Mosavi, S. A. and Ghaedi, M. (2012). An examination of the effects of perceived value and attitude on customers behavioral intentions in e-shopping. *African Journal of Business Management*, 6(5), 1950-1959.

Sadiq, M., Adil, M. and Paul, J. (2022). Eco-friendly hotel stay and environmental attitude: A value-attitude-behaviour perspective. *International Journal of Hospitality Management*, 100, 103094.

Shahsavar, T., Kubeš, V. and Baran, D. (2020). Willingness to pay for eco-friendly furniture based on demographic factors. *Journal of Cleaner Production*, 250, 119466.

Shadfar, S. and Malekmohammadi, I. (2013). Application of Structural Equation Modeling (SEM) in restructuring state intervention strategies toward paddy production development. *International Journal of Academic Research in Business and Social Sciences*, 3(12), 576-618.

Sheth, J. N., Newman, B. I. and Gross, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, 22(2), 159-170.

Sivapalan, A., von der Heidt, T., Scherrer, P. and Sorwar, G. (2021). A consumer values-based approach to enhancing green consumption. *Sustainable Production and Consumption*, 28, 699-715.

Sweeney, J. C. and Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing*, 77(2), 203-220.

Schermelleh-Engel, K., Moosbrugger, H. and Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74.

Tavares, M. M. (2021). *Exploring Portuguese green-purchase behavior: From environmental concerns to green products choice*. Master thesis, M.S., University Institute of Lisbon.

Tennant, A. and Pallant, J. F. (2012). The root mean square error of approximation (RMSEA) as a supplementary statistic to determine fit to the Rasch model with large sample sizes. *Rasch Measurement Transactions*, 25(4), 1348-1349.

Vassallo, M. and Saba, A. (2015). Does money for grocery expenditure sway Italian consumers' motivational values in predicting attitude towards eco-sustainable food products?. *Contemporary Management Research*, 11(1), 3-24.

Vonglao, P. (2017). Application of fuzzy logic to improve the likert scale to measure latent variables. *Kasetsart Journal of Social Sciences*, 38(3), 337-344.

Wang, S., Fan, J., Zhao, D., Yang, S. and Fu, Y. (2016). Predicting consumers' intention to adopt hybrid electric vehicles: using an extended version of the theory of planned behavior model. *Transportation*, 43, 123-143.

Wang, J., Shen, M. and Chu, M. (2021). Why is green consumption easier said than done? Exploring the green consumption attitude-intention gap in China with behavioral reasoning theory. *Cleaner and Responsible Consumption*, 2, 100015.

Xu, X., Wang, S. and Yu, Y. (2020). Consumer's intention to purchase green furniture: Do health consciousness and environmental awareness matter?. *Science of the Total Environment*, 704, 135275.

Xu, X., Hua, Y., Wang, S. and Xu, G. (2020). Determinants of consumer's intention to purchase authentic green furniture. *Resources, Conservation and Recycling*, 156, 104721.

Yu, S. and Lee, J. (2019). The effects of consumers' perceived values on intention to purchase upcycled products. *Sustainability*, 11(4), 1034.

Yaşlıoğlu, M. and Yaşlıoğlu, D. T. (2020). How and when to use which fit indices? A practical and critical review of the methodology. *Istanbul Management Journal*, 88, 1-20.

Young, W., Hwang, K., McDonald, S. and Oates, C. J. (2010). Sustainable consumption: Green consumer behaviour when purchasing products. *Sustainable Development*, 18(1), 20-31.

Zhao, H. H., Gao, Q., Wu, Y. P., Wang, Y. and Zhu, X. D. (2014). What affects green consumer behavior in China? A case study from Qingdao. *Journal of Cleaner Production*, 63, 143-151.

Zeynel, E. (2023). An investigation on hope and life satisfaction of employees in the aviation sector in new normal era. *Journal of Aviation*, 7(1), 133-140.