

AN EMPIRICAL INVESTIGATION ON SUSTAINABLE CONSUMPTION BEHAVIORS IN THE ONLINE EDUCATION INDUSTRY: PERSPECTIVES FROM CHINESE COLLEGE STUDENT

Songyu Jiang, Rajamangala University of Technology Rattanakosin
Ruihui Pu, Srinakharinvirot University

ABSTRACT

The study aims to investigate the perspectives that contributed to explaining the college students' sustainable consumption behavior in the online education industry (SCBOEI) and empirically build up with frameworks up lighting college students' drivers to consume sustainably and greenly in the online education industry. This research employs an exploratory design using a qualitative approach, with a semi-structured in-depth interview was conducted with 25 college students from different majors, ages and colleges in Chongqing city. The researcher is both a recorder and an observer. The data are coded by using NVivo 12.0 version software. The findings show that value, identity, environmental attitude, and contextual factors are critical dimensions to explain college students' SCBOEI. Value, identity, and contextual factors are the core explanatory factors, while environmental attitude is the sub-core explanatory dimension. However, the second level of coding shows that functional value, emotional value, self-identity, environmental attitude, government action, and social media have strong explanatory power. In addition, this study finds that covid-19 plays a prominent explanatory role in SCBOEI. Furthermore, learning conditions and psychological value can explain college students' SCBOEI to some extent. Such findings were encapsulated to building up with one theoretical framework pertinent and explain to SCBOEI. This paper contributes to existing theory as it provides evidence for the drivers of college students' SCBOEI, it also tentatively answers the question of inferring a difference in consumers' sustainable consumption. Finally, it studies sustainable consumption from perspectives of the online education industry for college students. to some extent, this study also promotes and extends the sustainable development goals (No.4 Higher Education and No.12 Consumption).

Keywords: Sustainable Consumption Behaviors, Online Education Industry, Chongqing, Qualitative Research, Interpretation of Dimension, Chinese College Students

INTRODUCTION

Sustainability plays essential role in the new era that can only be achieved by considering the environment, economy, and social system as a whole (Toman, 2010). Internationally, the sustainable consumption behavior in developing countries such as India (Bhar, 2019; Matharu et al., 2020), Brazil (Feil et al., 2020; Severo et al., 2021) and Egypt (Marzouk & Mahrous, 2017; Marzouk, 2019), is considered to grow compared to that in developed countries (Liu et al., 2017; Wang et al., 2019), such as the United States (Liu et al., 2017) and Germany (Fischer et al., 2017). However, more and more studies have begun to explore the fields of sustainable consumption behavior with industries in China (Shao, 2019).

Chongqing city has always been known as "Yangtze River economic belt, Chengdu Chongqing Economic Circle" and other important strategic names (Zhou & Ma, 2020). From 2010 to 2020, the research on sustainable development in Chongqing basically presents with some contributions, but the research on sustainable development in Chongqing has reached a peak in 2012-2013. In addition, as previous researches on sustainable development in Chongqing mainly focuses on tourism industry (Li et al., 2021), energy industry (Wang & Zhan, 2019), agriculture (Zhu et al., 2021), financial industry (Ye et al., 2017), transportation industry (Deng et al., 2020). However, the sustainable development of education industry in Chongqing city is still almost not involved. Sustainable consumption behavior of rural residents in Chongqing city (Wang et al., 2014) and the sustainable consumption behavior of water resources in the Three Gorges Dam Area (Wang et al., 2017). Sustainable consumption is a vital field of sustainable development (Adomßent et al., 2014). Sustainable consumption behavior in the online education industry is an essential issue of the current discussion.

Sustainable development involves the circular development of the environment and ecology and the health of the social system, such as solving poverty, famine, war, and education issues (Tomislav, 2018). Education has become an essential aspect of sustainable development, and education is not only an important factor to achieve sustainable development (Owens, 2017), education itself is a product in the process of social development, and the process of consuming educational products may also involve the issue of socially sustainable development (Boström et al., 2018).

Sustainable development of Chongqing higher education has achieved more important results (Gao et al., 2021). This research addresses those challenges by investigating the underlying factors behind online education's sustainable consumption behaviors. In contrast, studies conducted on sustainable consumption in Chongqing city focused on only one of the two pillars (education for sustainable development) with no regard to education as a commerce or industry (Mensah, 2019), how to promote sustainable development in its consumption process is different from traditional research. Traditional research on energy, resources, tourism, and other industries focuses on the sustainable behavior of consumers in the process of consumption, ignoring the instrumental nature of the industry. Education is quite remarkable. It is a tool to promote sustainable development, and at the same time, it is also a basic form of business (Bebbington & Unerman, 2018). Sustainable consumption behavior in online education also plays a vital role in the environment, society, and economy (Sahakian & Seyfang, 2018).

This study serves to investigate the SCBOEI of college students qualitatively. Moreover, identify the potentially different dimensions associated with sustainable consumption behaviors in the online education industry and determine if the previous literature did not identify any other factors. Thus, empirically blueprinting conceptual frameworks highlighting the factors influencing their sustainable consumption. Qualitative studies are necessary to augment previous results to develop a more comprehensive and contingent framework for sustainable consumption behavior in the online education industry. Consumer behavior theories and models based on consumers from other industries might not be appropriate to explain consumer behavior in the online education industry, as previous studies indicate the importance of education industry studies in emerging economies.

LITERATURE REVIEW

Sustainable Consumption in Different Industry

Sustainable consumption is vital to change the link consumption mode's pressure (Fischer et al., 2017). Sustainable consumption originates from the research of ethical consumption. Evans et al. (2011) define sustainable consumption as the mode of reducing natural resource consumption, changing lifestyle, and consuming environmental protection products. Sustainable consumption is a cube model illustrating this definition that comprises three core dimensions of consumption: (1) consumption phases, (2) consumption areas, and (3) sustainability spheres (Fischer et al., 2017). Sustainable consumption behavior mainly includes energy industry (Fielding & Hornsey, 2016), food industry (Lazaroiu et al., 2019), automobile industry, electric bicycle industry (Lin et al., 2017) household industry (Janis & Raimonds, 2016; Jonsson & Bylund, 2011), clothing industry (Connell & Kozar, 2014; Diddi et al., 2019) sharing economy (Matharu et al., 2020; Pu & Pathranarakul, 2019) online shopping (Yang et al., 2018) and so on. The research on sustainable consumption behavior mainly focused on energy, household, and other industries. After 2016, the research field of sustainable consumption gradually turns to food, clothing, and online shopping industries. However, the dominant research fields of sustainable consumption behavior are the food industry and some emerging industries, such as online shopping, P2P platform (Ceptureanu et al., 2020) sharing economy.

Online Education Industry in Chongqing

Online education refers to teaching and learning employing digital media such as the Internet (Zhou et al., 2020). It can break through the time constraints and space constraints in traditional education and make full use of various convenient conditions provided in Internet technology innovation. Finally, the concepts similar to online education include "MOOC, e-learning, online learning, online course, web-based learning, and virtual learning community."

Figure1 depicts several stages of online education development in Chongqing since 2010. Policy support for online education and teaching in Chongqing in 2010-2012 (Finley, Li, & Parker, 2012), and abundant contribution made to online education during this period (Comyn & Barnaart, 2010). such as implementation of Chongqing rural online education project (Zhouhang & Can, 2012), intentions of teachers in Chongqing rural primary and secondary schools to use online education (Yin, Lee, & Jin, 2011), campus culture in online education in higher education (W.-C. Lin & Yang, 2011), online education development strategy of higher education system (Yu-li, 2010). The period 2013-2016 can be regarded as the promotion stage of Chongqing's online education, such as the design of the online education system of the Chongqing public security cadre system (Yonghao & Yupeng, 2013), promotion measures of online educational services for agricultural development in Chongqing (Zhihong & Xiaoying, 2013). The 2017-2021 period is the stage of online education reform and take-off in Chongqing. This stage mainly focuses on online education teacher problems and countermeasures (Jingjing & Xuelan, 2020), reform of Chongqing's cadre online training system (H. Liu & Wang, 2018), development strategies of online education in Chongqing elementary and secondary Schools (Ye et al., 2017), online education teachers in primary and secondary schools in Chongqing (G. Liu, Chen, & Gu, 2019), design and construction of online education courses (Y. Li, Xia, Huang, Xiang, & Huang, 2020), online education user satisfaction survey (Cheng, 2020), the relationship between online education in Chongqing and education for the elderly (Yonggui Wang, Xiang,

Yang, & Ma, 2019) and study on Chongqing's Online Education in the Context of covid-19 (Cao, Li, Zhu, Gong, & Gao, 2020).

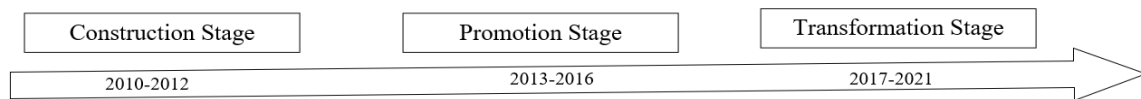


FIGURE 1
DEVELOPMENT TREND OF ONLINE EDUCATION INDUSTRY IN CHONGQING

There is still a significant gap in the research of Chongqing online education in the higher education system, and there is still a certain amount of research space for the research on online education consumption behavior of college students. Chongqing has always been committed to solving the problems of sustainable urban development, focusing on agriculture, resources, transportation, tourism, and other aspects. As Chongqing occupies an advantageous geographical location in the Yangtze River Basin and has abundant water resources, the study of sustainable consumption behavior in Chongqing is also closely integrated with water consumption (Wu et al., 2017).

Value and Sustainable Consumption Behavior

The value model is formed based on three models: Theory of Consumption Value (Sheth et al., 1991), The Theory of Perceived Value (Petrick, 2002), and The Value-Belief- Norm theory (Stern et al., 1999) Mainly emphasizes the predictive effect of value on sustainable consumption. Consumption value theory is used to study the factors affecting the SCB (Groening et al., 2018). Consumption at the everyday level is heavily driven by convenience, habit, value for money, health concerns, and individual responses to social and institutional norms. The consumption value theory stands based on three principles. (1) Consumption behavior is a function of multiple consumption values; (2) the contribution of each consumption value in a given situation differs significantly; (3) each of the consumption values is independent of each other (Sheth et al., 1991). Consumption value theory integrates various components of consumption values, explaining consumer choice as a function of multiple consumption values along several dimensions such as price, quality, appeal, emotions, and environmental impact and their trade-offs (Lazaroiu et al., 2019; Lin & Huang, 2012). Social, emotional, functional, environmental, and Psychological value has a more significant impact on sustainable consumption behavior, and it is also mentioned in the literature (Biswas, 2017). Therefore, this research will explore:

RQ1: What values can explain the sustainable consumption behavior of college students in the online education industry?

Environmental Attitude and Sustainable Consumption Behavior

The theory of planned behavior generally pays attention to the relationship between attitude (family attitude, travel attitude, environmental attitude, and etc) and sustainable consumption behavior (Tommasetti et al., 2018). Chen and Tung (2018) divide attitude to “product attitude” and “environmental attitude” (Lin & Niu, 2018). Attitudes toward sustainable consumption reflect individual beliefs regarding the consequences of sustainable consumption

behavior (Azjen, 1980). Based on environmental attitude research, some scholars put forward a concept similar to EA but closely related to sustainable consumption: sustainable consumption attitude. This study regards this attitude as a kind of environmental attitude. According to environmental psychologists Stern (2000) states that the sustainable consumption attitude refers to a positive attitude towards the environment. The more favorable attitude to the environment tends to feel morally forced to act to correct the negative impacts of human interaction with the environment. Sustainable consumption attitude refers to the set of beliefs, effects, interests, and intentions of a person's behavior regarding environmental issues or activities (Paim et al., 2013). The sustainable consumption attitude involves several aspects of the environment, such as air quality or environmental conservation practices, such as recycling (Byrka et al., 2010). Thus, the sustainable consumption attitude affects sustainable consumption practice.

Environmental attitude includes two aspects which are environmental concerns, and environmental efficacy is likely to be more relevant to sustainable consumption behavior (Hartmann & Apaolaza-Ibáñez, 2012). This research plan explores:

RQ2: How environmental attitudes explain the sustainable consumption behavior of college students in the online education industry?

Identity and Sustainable Consumption Behavior

Nigbur et al. (2011) & Gatersleben et al. (2014) pay attention to the relationship between identity and sustainable consumption behavior (Gatersleben, et al., 2019; Nigbur et al., 2010). And they are used to divide identification into three aspects: self-identity, social identity and place identity (Lee et al., 2015). This study adopts this view, as one of the central issues is the relationship between identity and SCB of the online education industry in Chongqing city

Self-identity refers to individuals possessing a sense of self that embraces pro-environmental actions (Van der Werff, et al., 2013). It does not extensively apply to sustainable consumption (Schaefer & Crane, 2005). Social identity is a person's sense of whom they rely on their group membership(s) (Tajfel, 1979). Social identity theory is an interactionist social psychological theory of the role of self-conception and associated cognitive processes and social beliefs in group processes and intergroup relations (Hogg, 2020). Place-identity is an individual's sense in a physical environment. It is a dimension of self-identity which defines 'whom we concern 'where we are. Place identity is the consumers' place of residence (Antonsich, 2010).

RQ3: What identities can explain the sustainable consumption behavior of college students in the online education industry?

Context Factors and Sustainable Consumption Behavior

Hines et al. (1987) propose that context factors control behavior and stimulate the occurrence of pro-environmental behavior. For example, a person who reduces energy consumption to save costs has no consciousness or motivation to respond to the environment (Hines et al., 1987). Contextual factors will have positive or negative effects on sustainable consumption behavior (Kostadinova, 2016). Contextual factors include service provision, social demographics, behavioral experience, policy interventions/ instruments, global environmental knowledge, waste knowledge, policy knowledge, and knowing where/how to recycle (Dutcher et al., 2007). Therefore, their behavior is determined more by the context than by internal (Dutcher et al., 2007). Over the years, psychologists place great importance on studying the role of the college student, with numerous higher education institutions have become the focus of many

contextual analyses. However, these studies can never agree on what factors play critical roles in a student's situation (Shackle, 2019). Contextual factors mainly involve the energy industry, food industry (Kostadinova, 2016). Therefore, the research plan explores:

RQ4: What contextual factors can explain the sustainable consumption behavior of Chongqing college students in the online education industry?

DATA COLLECTION

In order to enable participants to integrate into the interview, the research spent nearly 20 minutes before the interview. It gave participants examples to introduce related concepts, including sustainable development and sustainable development goals, sustainable consumption behavior, and primary use of sustainable consumption behavior in the hotel and video industries to help participants understand this concept. The research uses a semi-structured interview method. Although the research has full subjective awareness of the participants, it can also generate many unique and new insights for the sustainable consumption behavior of the online education industry to help complete the research content.

The interview outline includes six parts. The first part is an introduction to the project, and the middle part is the central part, including demographic information of the participants and online education experience. Then, this paper search the explanation of sustainable consumption behaviors in the online education industry by value, environmental attitude, identity, and contextual factors. The last part is the end. The question of value integrates (Sweeney & Soutar, 2001) the items of consumer value measurement and has been deleted, modified, and integrated. Environmental Attitudes (Dunlap & Jones, 2002) draw lessons from the measurement of environmental attitudes and add the theme of online education to rewrite it. Identity is the adjustment of the items in the identity research (de la Luz Escalona et al., 2015), adding the element design of Chongqing online education. The discussion of contextual factors comes from (Figueroa-García et al., 2018) the question raised by the influence of context on sustainable consumption behavior. The central part of the problem is mainly concerned with how these concepts impact sustainable consumption behavior in online education. The last part is to allow participants to understand the purpose of this research while also switching consumption patterns in future online education consumption to meet the needs of sustainable development.

In order to achieve the research goals, the study recruited 25 in-depth interview participants utilizing purpose sampling. All participants must be from undergraduate universities in Chongqing, and they must have more than one year of online education experience and have had consumer behavior in the online education industry. In order to make the data package and, the research considers recruiting participants of different majors, grades, schools, and genders when recruiting until these participants do not generate new views and codes

Qualitative research suggests that data collection and data analysis simultaneously implement (Islam & Islam, 2020). Coding is an essential step of qualitative research (Linneberg & Korsgaard, 2019). The qualitative research in this article mainly adopts the thematic coding method. We analyze each theme as a complete story and get the concept and core code through abstract induction from the story. After completing each interview, start to sort out the subject code of the interview. Because the interview uses Mandarin Chinese for recording during the interview, the study used text conversion software to convert the recording into text and then proofread and check the text, which became the original data for research and analysis. After finishing every three interviews, the research enters into a formal coding and coding update process, until finally; the overall coding cannot find a new point of view, the coding ends.

Nevertheless, this study discussed the relationship between these concepts and how they affect sustainable consumption behavior in online education. The study uses the thematic coding method to analyze the interview data and extracts themes in different question parts. The research combining with different interview topics, the following content will present the thematic data of this research.

DATA ANALYSIS

Value and Sustainable Consumption Behavior in Online Education Industry

Environmental and functional value are the most apparent predictors in the relationship between value and sustainable consumption behavior (Yaxing Wang et al., 2019). In online education sustainable consumption behavior, research codes show that value is still an important explanatory factor of SCBOEI, and functional value should be a core factor. Table 1 describes the value dimension (Source: by this study). The secondary core factors mainly include social value, environmental value, emotional value, and psychological value. From the analysis of the number of code nodes studied, the number of functional value nodes shows absolute advantages.

Moreover, functional value emphasizes price, quality, design, and other aspects in traditional sustainable consumption behavior. The functional value in SCBOEI contains price, time, space, convenience, excellent teachers, review, and abundant resources. In social value, consumers are concerned about the contribution of the online education industry to social development, especially the overall development of people. College students believe that their way of learning without leaving home can reduce carbon emissions and that paperless learning is conducive to protecting resources and even protecting water resources by reducing the output of the printing plant. Under the COVID-19 pandemic, the online education method has realized the social value and reduced the chance of infection. Self-learning knowledge and discovering better online education platforms can also be shared so that more people can learn good knowledge and promote educational equity. Emotional value is also the focus of the explanation of SCBOEI. The coding shows that their emotions towards teachers and the emotional changes in online education consumption are conducive to their further understanding of knowledge management and knowledge sharing. Psychological value is reflected in the process of psychological changes in many students' online education, most of which are from rejection or inexplicable to acceptance, habit, and identity. The data shows that emotional value is related to a psychological process of sustainable consumption behavior in the online education industry of college students. Most interviewees talked about their emotional dependence in this process, disdain, or indifference from the beginning. After long-term use, it has formed a habit and gradually integrates the online education industry with one's learning and life, and even thinks that this is also the trend of the future education industry.

<p>Table 1 THE NODE LEVEL OF THE VALUE DIMENSION AND THE TEXT</p>

ENCODING INFORMATION			
Theoretical Coding	Node Sources	Nodes	Coding Example
Value	227	485	
Social value	6	13	Online education can promote the efficient and wide-ranging dissemination of education, and plays an important role in cultural inheritance and innovation, which is the key to the sustainable development of society.
Functional value	75	168	
Safety	1	1	Online education keeps students indoors and ensures their personal safety.
Review	4	6	Online learning can play back or adjust the function selection of speed doubling, which is very conducive to my full learning.
Communication	3	9	Online live classroom is conducive to the communication and interaction between teachers and students.
Knowledge management	3	5	Teaching courses through the network can be recorded and saved, and these saved learning videos can be studied and watched repeatedly or shared, so that more people in need can learn and realize resource sharing.
Price	10	26	Many people with knowledge needs can afford online education.
Teacher convenience	1	4	Teachers only need to explain the teaching materials clearly according to the progress, so as to avoid the cumbersome work process such as finding materials and making courseware
Distance convenience	3	5	Online education allows you to learn the knowledge of world famous schools without leaving home
Excellent Teachers	8	20	Online education brings together the best teachers in various fields and transmits the best teaching results to all directions.
Time and distance	9	24	Online education breaks the limitation of time and space and can learn any time, anywhere
Time convenience	13	16	Online education allows me to learn at home at any time
Convenient learning	9	22	Online education is relatively free and independent
learning effect	3	5	Online education can bring students many functional and diversified skills
Diversity of resources	8	25	Online education is rich in educational resources. There are many things that teachers don't talk about in class. You can use the online education platform to solve your doubts
Environmental value	12	29	I reduced going out, and then I reduced carbon emissions and reduced the use of oil and natural gas.
Emotional value	20	40	I would like to sharing what I study and to gain some satisfy.
Teachers	14	26	I would like teachers who allow us to share teaching resources to suggest that we come down and
Emotional change	6	14	At the beginning, I was not used to it, because no students studied in the same place with me. I felt that learning had become a person's business, but I got used to it later, because my concentration would be higher.
Psychological value	19	27	I think most young people of our generation have social phobia. Choosing online education can also reduce a lot of social phobia.

Environmental Attitude and Sustainable Consumption Behavior in Online Education Industry

The online education industry is different from the hotel, food, metal, and others. Academic work focuses on the connection between this industry and the natural environment because education is essential for environmental protection. Environmental attitude is the concern and understanding of environmental problems and some of their effectiveness in solving environmental problems.

Table 2 suggests the online education industry involves power, network, water resources, paperless, and other issues. Therefore, they indirectly discussed the relationship between forest, water, metal, and online education industries. Despite this, almost all Respondents did not pay much attention to environmental issues in the online education consumption process. When we discussed this issue, very few interviewees talked about their concerns about energy consumption and manufacturing processes in this industry. Students with this view came from automation and logistics majors, but students from other majors did not show it. From the coding point of view, the paperless learning attitude is a more robust explanation for SCBOEI in the environmental attitude. To discuss SCBOEI from environmental attitudes, we have to admit that college students have a particular environmental awareness when facing the online education industry, but this awareness is far from enough. Perhaps this should be the direction of our future efforts.

Table 2			
NODE LEVEL AND TEXT ENCODING INFORMATION OF ENVIRONMENTAL ATTITUDE DIMENSION			
Theoretical Coding	Node Sources	Nodes	Coding Example
Environmental Attitude	14	32	
Energy Conservation	5	4	These electronic equipment will have an industrial impact on mines, water sources and land
Water Resources Care	3	7	There will be some pollution on the discharge of that printing
Paperless Learning	6	21	Since the paperless office, education has begun to achieve sustainable development on its own, and online examinations are becoming more and more common

Identity and Sustainable Consumption Behavior in Online Education Industry

Identity is a pre-factor of sustainable consumption behavior (Lu & Ho, 2020). Placing identity in SCBOEI for discussion can also prove its importance. In SCBOEI, we see that place identity, social identity, and self-identification can all explain their behavior. As shown in table 3, place identity is manifested as a preference for local online education brands, more trust and identity of local online education brands, and the expectation that their consumer behavior can contribute to the local economic development. On the other hand, the data shows that using online education is beneficial to cultivate confidence and recognize learning methods. Because learning needs concentration, which requires more effort than offline education, there is self-identification. Then, social identity means that they recognize the development trend of the online education industry and actively participate in this development. They also use online education methods, thinking that their consumption behavior is in line with the society of the times, and they are also a member of online education. Even this kind of social identity can be understood as when studying together, one feels that the circle of online education is mighty, the atmosphere is good, and there is a sense of honor. This identity makes students feel that online

education is a good choice. The identity of local brands contributes to local online education brands and contributes to local economic development, education equity, or other aspects (Source: by this study).

Theoretical Coding	Node Sources	Nodes	Coding Example
Identity	47	76	
Place Identity	13	18	Based on local recognition and hope, through their own online education consumption behavior, they also contribute to local economic development, education equity and environmental problems.
Social Identity	21	42	They have a certain impact on my sustainable consumption behavior, which makes me feel that online education has become a normal, so I may consider continuing to choose online education in the future.
Self-identity	13	16	Online learning has a wide range of knowledge, which makes me more knowledgeable. This is the sense of achievement and identity I find in online education.

Contextual Factors and Sustainable Consumption Behavior in Online Education Industry

Contextual factors can always stand out in predicting sustainable consumption behavior. Similarly, contextual factors also explain the sustainable consumption behavior of the online education industry. As shown in Table 4, the coding nodes of contextual factors are vibrant, mainly including COVID-19 pandemics, government actions, education, market conditions, and learning conditions. Nevertheless, the explanatory ability of learning conditions is relatively weak. School education, government action, market conditions, and social media have a solid ability to explain the sustainable consumption behavior of college students in the online education industry. In the coding, we accidentally discovered that the COVID-19 pandemic is an irresistible factor in a social era, and its interpretation of SCBOEI has unexpected explanatory power. They can also accept changes in education behavior under the government's arrangement, which positively impacts fighting the COVID-19 pandemic protecting the health, and shouldering social responsibility. The harmonious relationship between man and nature and the mission of scientific and technological development expressed in the innovation and entrepreneurship courses and philosophy courses in school education has inspired the sustainable consumption behavior of college students in online education.

Regarding the government's online education policy, whether to restrict or promote it, almost all students show the credibility of government action. Therefore, government action will shape and change the traditional education consumption model to some extent. After the COVID-19 pandemic, market conditions are relatively mature, which means online education is widespread in college students' studies and life. Therefore, they have gradually noticed that after the market is saturated, the consumption of this industry will contribute to education fairness, environment, health—the impact of sustainability-related issues. The influence of the media on college students is more critical in SCBOEI. Although some students have indicated that they are

rational in choosing online education, the media imperceptibly shape their online education behavior.

Moreover, media pass the education fairness, resource sharing, and paperless learning. The interpretation is more deeply rooted in the hearts of the people. Therefore, we are almost sure that the contextual factors explain SCBOEI.

Theoretical Coding	Node Sources	Nodes	Coding Example
Contextual Factors	103	179	
Covid-19 Pandemic	20	50	During the covid-19, I really understood the power of online education, reduced face-to-face communication and made education safer and more assured.
Education	20	31	Innovation and entrepreneurship and online elective courses let me understand scientific and Technological Development and sustainable development.
Government Actions	20	28	The government strongly supports the online education industry, so that the online education industry can develop better and have a higher service level, which will make it easier to choose online education consumption.
Market Condition	21	36	The information age is very conducive to the development of online education and will also have an impact on my consumption behavior. It has a wide coverage and more learning resources, which more attract me to consume.
Social media	20	30	Media reports will urge me to think more rationally and deeply about whether and how to choose. Rational and reasonable consumption is a key to the sustainable development of online education.
Study condition	2	4	The learning of online education is real-time and beyond time and space. It does not need to consider natural reasons such as weather, including the space occupied by offline classrooms.

RESULTS

The research almost confirmed the dimension that can explain the SCBOEI. Value, identity, and contextual factors are the core dimensions to explain SCBOEI. Environmental attitude is to explain the second core dimension of SCBOEI. The value dimension includes functional, social, emotional, environmental, and psychological value. Secondly, social and emotional values also have a particular explanatory ability, mainly related to the educational fairness of social development and the feelings of online education teachers. Environmental protection value explains SCBOEI from some energy-saving aspects of paperless education, while psychological value explains their SCBOEI from the psychological changes in the understanding of online education.

The value is the core dimension of SCBOEI, the most important of which is Explaining ability is its functional value because online education makes knowledge learning, knowledge sharing, and knowledge creation more convenient. It is very concerned about sustainable

development issues such as education equity and regional differences. After that, identity is a powerful dimension to help explain SCBOEI.

The self-identity gained from online education consumption will give rise to their attention to this industry, especially the sustainability of knowledge, which has positive significance for personal progress and social development. In addition, their consumption of online education's contribution to society, economy, and environment has made this behavior a trend, and college students are willing to actively participate in this trend and make themselves a part of the online education environment. Of course, the place identity also helps them promote local economic development when purchasing online education and pay attention to local education equality.

The contextual factors are another dimension to explain SCBOEI, and its theoretical codes mainly include education, government action, market conditions, social media, Covid-19, and learning conditions. Among them, the first four aspects explain SCBOEI as almost equally important, and Covid-19 is an unexpected discovery of research, and its ability to explain SCBOEI is no less than education, government action, market conditions, and social media. The learning condition is a relatively marginal part, and its explanation is minimal, and there is not much research on its coding content, but it already exists in the research theory. The research draws a qualitative research conceptual framework that can explain education, government action, market conditions, and social media Figure 2.

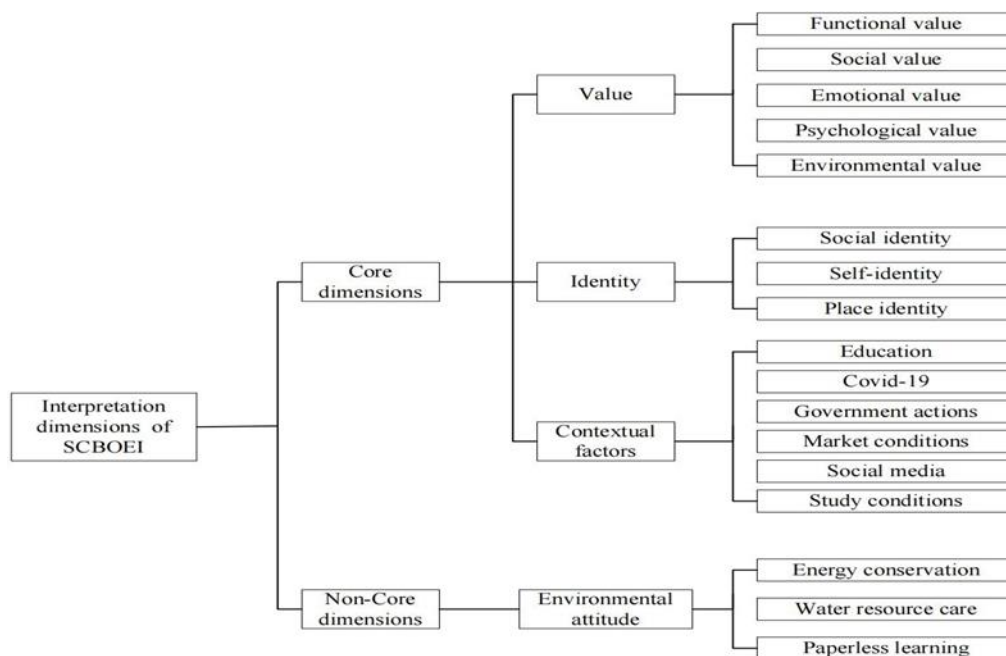


FIGURE 2
INTERPRETATION OF THE RESULTS FOR THE SCBOEI OF COLLEGE STUDENTS

DISCUSSION AND CONCLUSION

The method of qualitative research helped us obtain the final conceptual framework. It is a new attempt to discuss sustainable consumption behavior in the field of online education. The research code the interview records to obtain dimensions that can explain SCBOEI. The research broke the previous understanding of sustainable consumption in the field and significantly enriched the value dimension by using multiple theoretical codes to explain the functional value.

Moreover, the research has unexpectedly gained an understanding of the sustainable consumption behavior in online education among college students in the context of covid-19. Nevertheless, the study still has certain limitations. The participants of the study are all from the Chongqing area. Due to the particularity of the Chongqing area, their views may not apply to universities in other medium-sized cities or remote areas.

Secondly, due to the limitation of interview time, the content of the interview text is not rich enough. Semi-structured interviews and the support of the theoretical basis of sustainable consumption behaviors mean that researchers are guiding in data collection and may not be fully present new codes.

In summary, the research is based on the theory of consumption value, planned behavior, theory of value-belief-norm, and social exchange theory. The research has determined the dimensions that can explain the SCBOEI of college students, and interprets the specific content in each dimension. The research explains that SCBOEI is different from traditional sustainable consumption research that focuses on environmental issues. SCBOEI tries to solve and pay attention to the propositions of sustainable development such as fairness, knowledge, health, economy, innovation, and technology.

Therefore, the research breaks the theory of sustainable consumption. On the other hand, research also reflects that there is a lot of room for research on education and sustainable development in higher education, and the perception of college students in this area is relatively weak. Similarly, in the face of online education, college students' environmental awareness and attitudes are reflected, but their environmental concerns in this field are very weak. Therefore, higher education should also continue to care about the sustainable development of college students and work harder for it.

The Research has some pertinent suggestions for promoting sustainable development of higher education because survey data shows that college students can obtain information on sustainable consumption with few classrooms and teachers, especially for new industries, technologies, and knowledge sharing. In-depth understanding. Secondly, Research can help college students explain their increasingly sustainable consumption behaviors in the online education industry and encourage them to continue their efforts so far.

Research has promoted the theoretical development and sustainable construction of sustainable consumption behaviors in online education. However, if quantitative research methods can verify the explanation given to us by qualitative Research, the conclusions of the Research will be more scientific, which is also the direction of future research efforts. The factors that explain sustainable consumption behavior in quantitative Research include not only these but also consumer engagement, atmosphere, peers, demographic variables. In order to complete the Research, Research will continue to work in these areas.

REFERENCES

- Adomßent, M., Fischer, D., Godemann, J., Herzig, C., Otte, I., Rieckmann, M., & Timm, J. (2014). Emerging areas in research on higher education for sustainable development—management education, sustainable consumption and perspectives from Central and Eastern Europe. *Journal of Cleaner Production*, 62, 1-7.
- Antonsich, M. (2010). Meanings of place and aspects of the self: an interdisciplinary and empirical account. *GeoJournal*, 75(1), 119-132.
- Azjen, I. (1980). Understanding attitudes and predicting social behavior. *Englewood Cliffs*.
- Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: an enabling role for accounting research. *Accounting, Auditing & Accountability Journal*.
- Bhar, S. (2019). Introducing phenomenological research methodology in sustainable consumption literature: Illustrations from India. *International Journal of Qualitative Methods*, 18, 1609406919840559.
- Boström, M., Andersson, E., Berg, M., Gustafsson, K., Gustavsson, E., Hysing, E., Olsson, J. (2018). Conditions for transformative learning for sustainable development: A theoretical review and approach. *Sustainability*, 10(12), 4479.
- Byrka, K., Hartig, T., & Kaiser, F.G. (2010). Environmental attitude as a mediator of the relationship between psychological restoration in nature and self-reported ecological behavior. *Psychological Reports*, 107(3), 847-859.
- Cao, C., Li, J., Zhu, Y., Gong, Y., & Gao, M. (2020). Evaluation of Online Teaching Platforms Based on AHP in the Context of COVID-19. *Open Journal of Social Sciences*, 8(07), 359.
- Ceptureanu, E.G., Ceptureanu, S.I., Herteliu, C., & Cerqueti, R. (2020). Sustainable consumption behaviours in P2P accommodation platforms: An exploratory study. *Soft Computing*, 1-8.
- Cheng, Y. (2020). Research on the Application of Modern Information Technology in Higher Education. Paper presented at the 2020 The 4th International Conference on Education and Multimedia Technology.
- Comyn, P., & Barnaart, A. (2010). TVET reform in Chongqing: big steps on a long march. *Research in Post-Compulsory Education*, 15(1), 49-65.
- Connell, K.Y.H., & Kozar, J.M. (2014). Environmentally sustainable clothing consumption: knowledge, attitudes, and behavior. In *Roadmap to sustainable textiles and clothing* (pp. 41-61): Springer.
- de la Luz Escalona, M., García, C.H., Leal, E., Arias, L.F., & Treviño, F.A. (2015). Social identity in a service organization: A scale's content and construct validity social identity scale. *Psychology*, 5(1), 68-75.
- Deng, F., Fang, Y., Xu, L., & Li, Z. (2020). Tourism, transportation and low-carbon city system coupling coordination degree: A case study in Chongqing Municipality, China. *International Journal of Environmental Research and Public Health*, 17(3), 792.
- Diddi, S., Yan, R.N., Bloodhart, B., Bajtelsmit, V., & McShane, K. (2019). Exploring young adult consumers' sustainable clothing consumption intention-behavior gap: A Behavioral Reasoning Theory perspective. *Sustainable Production and Consumption*, 18, 200-209.
- Dunlap, R.E., & Jones, R.E. (2002). Environmental concern: Conceptual and measurement issues. *Handbook of environmental sociology*, 3(6), 482-524.
- Dutcher, D.D., Finley, J.C., Luloff, A., & Johnson, J.B. (2007). Connectivity with nature as a measure of environmental values. *Environment and Behavior*, 39(4), 474-493.
- Feil, A.A., da Silva Cyrne, C.C., Sindelar, F.C.W., Barden, J.E., & Dalmoro, M. (2020). Profiles of sustainable food consumption: Consumer behavior toward organic food in southern region of Brazil. *Journal of Cleaner Production*, 258, 120690.
- Fielding, K.S., & Hornsey, M.J. (2016). A social identity analysis of climate change and environmental attitudes and behaviors: Insights and opportunities. *Frontiers in Psychology*, 7, 121.
- Figuroa-García, E.C., García-Machado, J.J., & Perez-Bustamante Yabar, D. C. (2018). Modeling the social factors that determine sustainable consumption behavior in the community of Madrid. *Sustainability*, 10(8), 2811.
- Finley, S., Li, L., & Parker, M.A. (2012). School days in China: an interview with Ling Li, Professor and Associate Director of the Center for International and Comparative Education, Southwest University, Chongqing, China. *International Journal of Qualitative Studies in Education*, 25(2), 177-182.
- Fischer, D., Böhme, T., & Geiger, S.M. (2017). Measuring young consumers' sustainable consumption behavior: Development and validation of the YCSCB scale. *Young Consumers*.
- Fischer, D., Stanzus, L., Geiger, S., Grossman, P., & Schrader, U. (2017). Mindfulness and sustainable consumption: A systematic literature review of research approaches and findings. *Journal of Cleaner Production*, 162, 544-558.
- Gao, H., Yang, W., Wang, J., & Zheng, X. (2021). Analysis of the effectiveness of air pollution control policies based on historical evaluation and deep learning forecast: A case study of Chengdu-Chongqing region in China. *Sustainability*, 13(1), 206.

- Gatersleben, B., Murtagh, N., Cherry, M., & Watkins, M. (2019). Moral, wasteful, frugal, or thrifty? Identifying consumer identities to understand and manage pro-environmental behavior. *Environment and Behavior*, 51(1), 24-49.
- Groening, C., Sarkis, J., & Zhu, Q. (2018). Green marketing consumer-level theory review: A compendium of applied theories and further research directions. *Journal of Cleaner Production*, 172, 1848-1866.
- Hartmann, P., & Apaolaza-Ibáñez, V. (2012). Consumer attitude and purchase intention toward green energy brands: The roles of psychological benefits and environmental concern. *Journal of Business Research*, 65(9), 1254-1263.
- Hines, J.M., Hungerford, H.R., & Tomera, A.N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *The Journal of environmental education*, 18(2), 1-8.
- Hogg, M.A. (2020). *Social identity theory*: Stanford University Press.
- Islam, M.N., & Islam, M.S. (2020). Data Collection and Analysis. In *Islam and Democracy in South Asia* (pp. 49-65): Springer.
- Janis, B., & Raimonds, E. (2016). *SUSTAINABLE HOUSEHOLD CONSUMPTION IN LATVIA: ENVIRONMENTAL BEHAVIOUR AND COMMUNICATION REQUIREMENT*. Paper presented at the 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016.
- Jingjing, L., & Xuelan, Y. (2020). *Research on Problems and Countermeasures of English Education Activities in Kindergartens--A case of kindergarten A in Dazu District of Chongqing*. Paper presented at the 2020 International Conference on Artificial Intelligence and Education (ICAIE).
- Jonsson, F., & Bylund, L. (2011). Design of a Household Concept Motivating Sustainable Consumption Behavior. In Kostadinova, E. (2016). Sustainable consumer behavior: Literature overview. *Economic Alternatives*, 2, 224-234.
- Lazaroiu, G., Andronie, M., Uță, C., & Hurloiu, I. (2019). Trust management in organic agriculture: Sustainable consumption behavior, environmentally conscious purchase intention, and healthy food choices. *Frontiers in Public Health*, 7, 340.
- Lee, C.K., Levy, D.S., & 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.
- Li, L., Yang, Q., & Xie, X. (2021). Coupling coordinated evolution and forecast of tourism-urbanization-ecological environment: The case study of Chongqing, China. *Mathematical Problems in Engineering*, 2021.
- Li, Y., Xia, C., Huang, Y., Xiang, C., & Huang, P. (2020). Course Design of EPC from the Perspective of Discursive Competences: A Case in Chongqing University. In *Asian Research on English for Specific Purposes* (pp. 121-137): Springer.
- Lin, P.C., & 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.
- Lin, S.T., & Niu, H.J. (2018). Green consumption: Environmental knowledge, environmental consciousness, social norms, and purchasing behavior. *Business Strategy and the Environment*, 27(8), 1679-1688.
- Lin, W.C., & Yang, S.C. (2011). Exploring students' perceptions of integrating Wiki technology and peer feedback into English writing courses. *English Teaching: Practice and Critique*, 10(2), 88-103.
- Lin, X., Wells, P., & Sovacool, B. K. (2017). Benign mobility? Electric bicycles, sustainable transport consumption behaviour and socio-technical transitions in Nanjing, China. *Transportation Research Part A: Policy and Practice*, 103, 223-234.
- Linneberg, M.S., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative research journal*.
- Liu, G., Chen, S., & Gu, J. (2019). Urban renewal simulation with spatial, economic and policy dynamics: The rent-gap theory-based model and the case study of Chongqing. *Land Use Policy*, 86, 238-252.
- Liu, H., & Wang, T.-Y. (2018). China and the "Singapore Model": Perspectives from mid-level cadres and implications for transnational knowledge transfer. *The China Quarterly*, 236, 988-1011.
- Liu, Y., Qu, Y., Lei, Z., & Jia, H. (2017). Understanding the evolution of sustainable consumption research. *Sustainable Development*, 25(5), 414-430.
- Marzouk, O., & Mahrous, A. (2017). An exploratory study on energy and water sustainable consumption behaviors of rural consumers in Egypt. *التجارة ك لية مؤتمرات*.
- Marzouk, O.A. (2019). A qualitative examination of urban vs rural sustainable consumption behaviours of energy and water consumers in the emerging Egyptian market. *Journal of Humanities and Applied Social Sciences*.
- Matharu, M., Jain, R., & Kamboj, S. (2020). Understanding the impact of lifestyle on sustainable consumption behavior: a sharing economy perspective. *Management of Environmental Quality: An International Journal*.

- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1), 1653531.
- Nigbur, D., Lyons, E., & Uzzell, D. (2010). Attitudes, norms, identity and environmental behaviour: Using an expanded theory of planned behaviour to predict participation in a kerbside recycling programme. *British Journal of Social Psychology*, 49(2), 259-284.
- Owens, T.L. (2017). Higher education in the sustainable development goals framework. *European Journal of Education*, 52(4), 414-420.
- Paim, L., Othman, M., Hashim, A.H., Haron, S.A., Osman, S., & Masud, J. (2013). *Membudayakan penggunaan lestari: Persatuan Ekonomi Pengguna dan Keluarga Malaysia (MACFEA)*.
- Petrick, J.F. (2002). Development of a multi-dimensional scale for measuring the perceived value of a service. *Journal of leisure research*, 34(2), 119-134.
- Pu, R., & Pathranarakul, P. (2019). Sharing Economy as Innovative Paradigm Towards Sustainable Development: A Conceptual Review. *Journal of Reviews on Global Economics*, 8, 387-398.
- Sahakian, M., & Seyfang, G. (2018). A sustainable consumption teaching review: From building competencies to transformative learning. *Journal of Cleaner Production*, 198, 231-241.
- Schaefer, A., & Crane, A. (2005). Addressing sustainability and consumption. *Journal of Macromarketing*, 25(1), 76-92.
- Severo, E.A., De Guimarães, J.C.F., & Dellarmelin, M.L. (2021). Impact of the COVID-19 pandemic on environmental awareness, sustainable consumption and social responsibility: Evidence from generations in Brazil and Portugal. *Journal of Cleaner Production*, 286, 124947.
- Shackle, S. (2019). The way universities are run is making us ill”: Inside the student mental health crisis. *The Guardian*, 27.
- Shao, J. (2019). Sustainable consumption in China: New trends and research interests. *Business Strategy and the Environment*, 28(8), 1507-1517.
- Sheth, J.N., Newman, B.I., & Gross, B.L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, 22(2), 159-170.
- Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human ecology review*, 81-97.
- Sweeney, J.C., & Soutar, G.N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing*, 77(2), 203-220.
- Tajfel, H. (1979). Individuals and groups in social psychology. *British Journal of social and clinical psychology*, 18(2), 183-190.
- Toman, M.A. (2010). *The difficulty in defining sustainability*: Routledge.
- Tomislav, K. (2018). The concept of sustainable development: From its beginning to the contemporary issues. *Zagreb International Review of Economics & Business*, 21(1), 67-94.
- Tommasetti, A., Singer, P., Troisi, O., & Maione, G. (2018). Extended theory of planned behavior (ETPB): investigating customers' perception of restaurants' sustainability by testing a structural equation model. *Sustainability*, 10(7), 2580.
- Van der Werff, E., Steg, L., & Keizer, K. (2013). It is a moral issue: The relationship between environmental self-identity, obligation-based intrinsic motivation and pro-environmental behaviour. *Global Environmental Change*, 23(5), 1258-1265.
- Wang, C., Ghadimi, P., Lim, M.K., & Tseng, M.L. (2019). A literature review of sustainable consumption and production: A comparative analysis in developed and developing economies. *Journal of Cleaner Production*, 206, 741-754.
- Wang, J., Sheng, Y., & Wada, Y. (2017). Little impact of the Three Gorges Dam on recent decadal lake decline across China's Yangtze Plain. *Water resources research*, 53(5), 3854-3877.
- Wang, P., Liu, Q., & Qi, Y. (2014). Factors influencing sustainable consumption behaviors: a survey of the rural residents in China. *Journal of Cleaner Production*, 63, 152-165.
- Wang, Q., & Zhan, L. (2019). Assessing the sustainability of the shale gas industry by combining DPSIRM model and RAGA-PP techniques: An empirical analysis of Sichuan and Chongqing, China. *Energy*, 176, 353-364.
- Wang, Y., Li, Y., Zhang, J., & Su, X. (2019). How impacting factors affect Chinese green purchasing behavior based on Fuzzy Cognitive Maps. *Journal of Cleaner Production*, 240, 118199.
- Wang, Y., Xiang, D., Yang, Z., & Ma, S.S. (2019). Unraveling customer sustainable consumption behaviors in sharing economy: A socio-economic approach based on social exchange theory. *Journal of Cleaner Production*, 208, 869-879.

- Wu, H. a., Zeng, B., Zhou, M., Zhang, W., Yu, Y., Zhou, X., Li, C. (2017). Forecasting the Water Demand in Chongqing, China Using a Grey Prediction Model and Recommendations for the Sustainable Development of Urban Water Consumption Evaluating Water Consumption Based on Water Hierarchy Structure for Sustainable Development Using Grey Relational Analysis: *Case Study in Chongqing, China*. 14(11).
- Yang, S., Li, L., & Zhang, J. (2018). Understanding consumers' sustainable consumption intention at china's double- 11 online shopping festival: An extended theory of planned behavior model. *Sustainability*, 10(6), 1801.
- Ye, X., Ma, L., Ye, K., Chen, J., & Xie, Q. (2017). Analysis of regional inequality from sectoral structure, spatial policy and economic development: A case study of Chongqing, China. *Sustainability*, 9(4), 633.
- Yin, H.-b., Lee, J., & Jin, Y.-l. (2011). Teacher receptivity to curriculum reform and the need for trust: An exploratory study from Southwest China. *The Asia-Pacific Education Researcher*, 20(1), 35-47.
- Yonghao, N., & Yupeng, S. (2013). Index System Design in Archives Public Service Evaluation: An Analysis Based on BSC and AHP [J]. *Archives Science Study*, 2.
- Yu-li, S. (2010). Research on THE Role of Chongqing Higher Educational Resources in Balancing Urban and Rural Development [J]. *Journal of Chongqing University of Technology (Social Science)*, 2.
- Zhihong, Z., & Xiaoying, Z. (2013). The Selection of Service Model and Development Path of Informationization in Rural Areas: Based on the data of Chongqing City in China. *Studies in Sociology of Science*, 4(2), 4-8.
- Zhou-hang, P.M.-h.L., & Can, C. (2012). Strategies in the Management of Educational Resources-Sharing Projects between Famous and Weak Schools [J]. *Education and Teaching Research*, 1.
- Zhou, J., & Ma, J. (2020). Vision of China's Wind Power Industry. In *Strategies of Sustainable Development in China's Wind Power Industry* (pp. 61-127): Springer.
- Zhu, L., Yang, M., Li, W., Liao, H., & Huang, H. (2021). The Spatial–Temporal Changes of the Coupling Relationship among Agricultural Labor Force, Agricultural Economy, and Farmland in Chongqing. *Sustainability*, 13(16), 8780.