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Research Article

Optimal Control Strategy Model of Marketing Management Based on Consumer Psychology

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This paper uses an optimal control strategy approach to conduct an in-depth study and analysis of consumer psychology and to design marketing management in this way. The process simulation enhances consumer participation in virtual CSR co-creation by enhancing task meaning perceptions, and the outcome simulation weakens consumer participation in virtual CSR co-creation by decreasing task meaning perceptions. Second, the proximity of the target distance positively moderates the relationship between psychological stimulation and task meaning perceptions, with process simulation having a stronger effect on task meaning perceptions at closer target distances than at longer target distances; the proximity of the target distance positively moderates the relationship between psychological simulation and consumer engagement in virtual CSR co-creation, with process simulation having a stronger effect on consumer engagement in virtual CSR co-creation at closer target distances than at longer target distances. The effect of simulation on consumers' participation in virtual CSR co-creation is stronger at a closer target distance than at a farther target distance. A multi-input and multioutput block diagram structure is proposed in the frequency domain to describe the characteristics of the multisubject system with transfer functions. Males and females accounted for 58.6% and 41.4% of the total sample population, respectively. The entire multisubject system is decomposed according to matrix theory, and the consistency problem of the multisubject system is converted into the stability problem of multiple subsystems. The global stability domain of the distributed PID controller is obtained by finding the stability domain of the PID controller for each subsystem after decomposition and taking the intersection set. The product green preferences of consumers are incorporated into the demand model, and the correlation between the inventory strategy of products, green inputs, and the manufacturer's confident preferences is investigated. The article considers two models of centralized inventory management and decentralized inventory management for manufacturers and conducts a cross-sectional comparison. The article finds through numerical experiments that the manufacturer's assertive behavior in most cases makes its gains suffer but is often beneficial for the interests of retailers, overall supply chain efficiency, and environmental friendliness.

1. Introduction

With the development of economic globalization, global business competition is becoming increasingly fierce, while customer demand for products is constantly changing, and these factors pose a great challenge to corporate inventory decisions [1]. When making inventory decisions, companies should consider not only operating costs and service reliability levels but also, and more importantly, the overall system profit maximization and the optimal match between customer demand and product supply. Lower levels of service reliability and higher inventory costs can lead to severe inventory shortages, which in turn can cause significant delays in orders, as well as customer churn, affecting not only the company's reputation but also reducing its profits. The uncertainty of customer demand and product supply, as well as the ultimate mismatch between demand and supply, can have a serious impact and high losses on the company. Therefore, it is of great practical importance to carry out optimal control of inventory to maximize the profit of the company under a certain level of service reliability and according to the needs of business operation [2]. Measurement error is also a measure where it is required to be less than 0.5. The products in inventory also require some

time to retrieve, prepare, pack, and load. Currently, most of the research literature on inventory models has the variables of customer demand as random and they all assume that the supply lead time is constant. However, in the actual production process, the supply lead time has a very important impact on the inventory level. In a supply chain system, the existence of unknown events makes the product supply highly uncertain, and the supply lead time must also be considered as a random variable [3]. Therefore, the study of classical queuing systems needs to be extended to a service-inventory system model with positive service times. Compared to classical inventory control models, these models are more general and better reflect the realistic characteristics of many systems in manufacturing and service industries in real production.

First, when physical sales channels and online sales channels exist at the same time, it is difficult to avoid channel conflicts due to the competition between different channels in terms of product prices and services, as well as consumers' free-rider behavior based on pre-sales services of products [4]. Channel conflict can cause retailers to suffer losses, while the channel members' expectations of the number of benefits to be gained from cooperation and the prospects of cooperation are important factors that affect the manufacturer's channel control. Maintain the reasonable profit margin of each member of the value chain and strengthen channel control, so that the enterprises can establish a stable and controllable channel distribution system and market order, and ultimately improve the core competitiveness of the brand. Secondly, based on considering channel conflicts, how to match the demands of online channels, and how to readjust and meet the demands of offline channels, these issues make supply chain members need to develop corresponding production and inventory strategies. The core of online paid knowledge is to make knowledge into products or services and sell these products or services through the Internet to achieve profit for individuals or companies [5]. The Cronbach α value is one of the indicators to measure the reliability level of the scale. In addition to the increasing attention of the capital market, the social media environment is also becoming increasingly mature, laying a solid foundation for the development of the online knowledge payment industry. With a good foundation of the internal and external market environment, the key to how the business models of online learning products and services of these related knowledge payment platforms can achieve good results lies in how to enhance the willingness of target users and potential target users to purchase related knowledge payment products. Therefore, it is especially necessary to focus the research perspective on the factors that influence the willingness of online knowledge payment platforms to purchase online knowledge payment products and services by most target users in the market.

This study investigates whether different types of psychological simulations of consumers' participation in virtual CSR co-creation activities can awaken consumers' norms and thus influence their willingness to participate. The study also attempts to explain the psychological mechanisms by which two different forms of psychological simulation influence consumer participation in virtual CSR co-creation: does process simulation enhance consumer participation in virtual CSR co-creation, or does outcome simulation enhance consumer participation in virtual CSR co-creation? Furthermore, to clarify the boundaries of the impact of psychological simulation on consumer engagement in virtual CSR co-creation, this study seeks to investigate whether the task goal distance and the strength of the user's relationship with other users in virtual CSR co-creation affect the relationship between psychological simulation and consumer engagement. When the test result finds that the Cronbach α value is greater than 0.8, it means that the reliability of the scale is excellent. Therefore, this study will investigate the impact of psychological simulation on consumers' willingness to participate in virtual CSR co-creation, as well as the psychological processes and influence paths of different types of psychological simulation on consumers' participation in virtual CSR co-creation, and explore the moderating effect of target distance and relationship strength on their relationship.

2. Related Works

To ensure that business processes can be suitable for the development of enterprise information management, foreign scholars have proposed value chain models. Malikopoulos's enterprise value chain model is an important guiding idea for the reengineering of enterprise business process system, which has an important guiding role in various aspects of process diagnosis, design, and continuous improvement [6]. Hong depicts the business process of an enterprise as a value chain, and competition occurs not only between enterprises, but also between the respective value chains of enterprises [7]. Only a company that implements effective management of each link of the value chain can truly gain a competitive advantage in the market. The enterprise value chain model breaks down the activities of a firm into some strategically related activities that are materially and technically well-defined and are the cornerstones of the firm's ability to create products that are valuable to buyers, hence the term value activities [8]. It is by performing these important value activities more cheaply or better than competitors that a firm develops a system of business processes that can win competitive advantage. The value stream-based information technology operations framework proposed by Kim and others, which identifies the functions and data needed to manage IT services from an end-to-end perspective, consists of the best time results of IT service management from many excellent companies [9]. It is convenient to directly find the internal inspection report of the system and send it to the customer. The value stream-based information technology operations framework enables IT organizations to carry out better quantitative management of services based on the attribute elements of functions, data, and relationships they provide, and to effectively assess the risks and inconsistencies in achieving service requirements through the metrics of process, cost, and capacity of services [10]. The application of this theory to the marketing operations of enterprises has played a good

effect, confirming the need for the construction of marketing information management.

In the actual market operation, companies cannot force customers to place orders before they need the product, but they can induce customers to follow the reservation strategy by giving them certain incentives or price discounts [11]. The commitment lead time constraint reduces the risk of demand uncertainty for the firm and the risk of inventory unavailability for the customer [12]. For companies, the shorter the lead time for products offered to customers, the greater the pressure on the production system, and the lower the probability of being able to deliver products to customers on time, which is likely to lead to late delivery, and thus companies need to bear higher delay costs; too long a lead time for products offered to customers will affect the actual demand for products used by customers, thus losing many orders [13]. Therefore, determining a reasonable lead time for order supply is especially important for companies to achieve their supply lead time commitments [14].

The matching of behavioral preference factors with the decision model has the following considerations. The impact of price in terms of profit distribution as well as revenue can intuitively reflect the cooperation intention and risk tolerance of supply chain members, which is intrinsically linked to members' equity concerns and risk-averse behavior. When demand is certain, members will pay more attention to the profit distribution; when demand is uncertain, members will consider the expected benefits and risks from the pricing. Based on this, this paper applies members' fair concern and risk-averse behaviors to the pricing decision model under different scenarios. To avoid calling the warehouse management personnel to inquire about the batch number of the product or after the loading machine has finished loading the goods, the warehouse at the loading place will return to the Internal Affairs Office of the Ministry of Domestic Trade to print the inspection report. Inventory planning requires managers to forecast market demand, which reflects the decision makers' ability to grasp market changes. In this process, managers are often influenced by their subjective decisions. Such subjective decisions are reflected in the fact that, on the one hand, they tend to rely too much on their own experience or trust their judgment when forecasting demand, and on the other hand, managers are unable to face expected gains and losses objectively. Therefore, this paper applies two representative cognitive biases, the overconfidence of members and loss aversion, to the inventory decision model of a two-channel supply chain under demand uncertainty.

3. Analysis of Optimal Control Strategies for Marketing Management with Consumer Psychology

3.1. Optimal Control Strategy Design. In this study, the service system is treated as a queue, and customers arrive at the service desk one after another with a rate of; Poisson process, queue, and receive service. The service rule is first-come, first-served, with one service desk and the ability to serve all customers and serve only one customer at a time. Each customer only needs to order one product from the inventory, and when the service for any customer is completed, the inventory of products and the number of customers in the system are reduced. There is only one service desk in the system with infinite waiting space and infinite product capacity in inventory. When the product inventory is positive, the service time to customers is exponentially distributed [15]. If there are no customers in the system, arriving customers are served directly. When the service desk is busy, newly arriving customers queue in an infinitely long waiting hall.

The three points of focus, positioning, and differentiation are the key factors for a successful marketing strategy to reach successful realization. To gain an exclusive market position that is difficult for competitors to imitate and surpass, companies must carefully select their target market, create a novel and unique product positioning, effectively communicate with customers, and develop differentiated market offerings. The aspect to be noted is that addressing the entire market or the entire range within the market will consume and waste a lot of the company's costs and efforts, and requires a focus on the market. In this way, the company can meet the needs of its customers with greater efficiency and more unique products and services. Positioning refers to communicating the attributes of products developed by the company to customers in the target market segment [16]. It strives to make the company unique, create a key competitive advantage, and position the brand in the most advantageous position among customers. As a result, when customers have a need, they consider the brand to be the item of choice. Differentiation refers to marketing programs that develop a more differentiated product line and create a unique image, become an industry leader, and strive to gain a competitive advantage in the industry in which they operate, as shown in Figure 1. From the perceived experience and perceived preference formed from product attributes, product efficacy, use results, etc., the customer's reference dependence characteristics will significantly affect the customer's perceived value.

Regarding the manipulation of psychological simulation, the subjects were asked to conduct specific psychological simulations according to the purpose of the study. To ensure that the subjects completed the psychological simulation, they were generally asked to write the content of the psychological simulation, and finally, the effect of the psychological simulation was tested [17]. The renovation of a family home includes the preliminary consulting business, the intermediate design, construction tasks, and the final acceptance process, in which the pricing of architectural decoration is based on the complexity and quantity of the construction process, and the design can be used as a value-added service for home renovation, but this form often does not make the consumer satisfied with the marketing to the result. The importance of design for whole-house decoration is slowly being recognized by consumers, so design consumption is gradually being accepted.

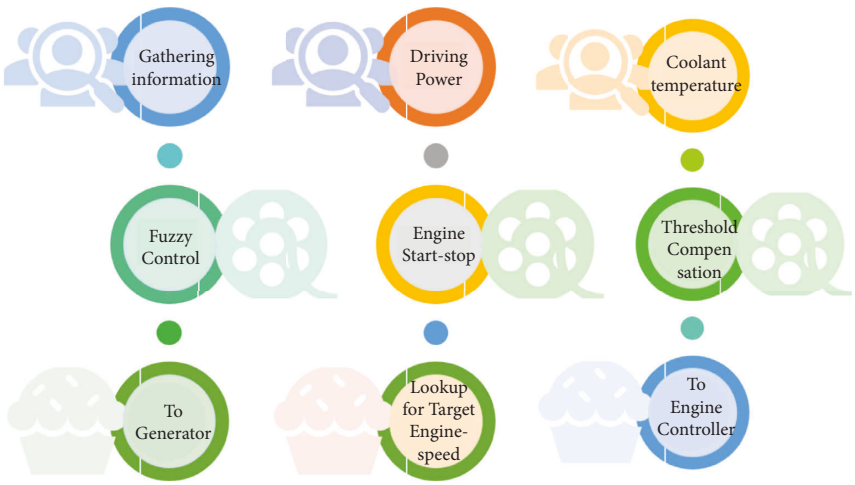

Figure 1: Optimal control strategy.

For now, there are two outstanding issues to be improved in the design of the consistency controller of the first-order system. The first is the time lag problem of the system. The existence of communication time lag in the multiple self-subject systems because of connecting every single system, and the existence of input time lag in each independent closed-loop feedback system makes it difficult to apply the traditional single-system feedback control design method directly to the multi-individual system. From previous research results, it can be found that there always exists a control protocol to achieve system consistency if the time lag is within a certain range. However, it is still an extremely challenging topic to design a distributed controller to improve the coherence performance of a first-order multi-subject system with a specific time lag in an analytical way. In addition, the consistency problem in a directed topology also needs to be addressed. When the network topology of a multi-self-subject system is a directed graph, the eigenvalues of its corresponding Laplace matrix may be complex. In this way, the characteristic equations of the system are expanded from the real domain to the complex domain [18]. It is still a challenge to design distributed controllers for the Eigen equations in the complex domain case analytically.

The structural block diagram of the distributed control structure of the multi-self-subject system is shown in Figure 2. Looking at the development of the retail industry, because there was no support from advanced technology in the past, if companies wanted to grab customers, the methods they could take were relatively simple and crude, and there would also be relatively simple concepts. Loading an independent controller on everyone not only ensures the stable operation of the individual but also enables the individual to achieve the consistency of the multi-self-subject system through the information interaction with the neighboring nodes. Consider the multi-self-subject system to be designed to contain n general first-order individuals.

Building enterprise marketing information management is the key to enterprise development and a shortcut to creating an industrial chain and increasing the added value of products. Only market-oriented marketing operation and marketing management activities are driven by customer demand can enable enterprises to pull the continuous innovation of production and operation with market demand, so that enterprises can gradually control the whole industrial chain from simple processing and manufacturing link, and finally realize efficient integration of industrial chain from processing and manufacturing to product development, raw material procurement, logistics and transportation, order processing and product sales. Usually, they improved their service capabilities to improve their competitive advantages. The implementation of marketing information management in enterprises should follow three basic rules: focus on motivating users' intrinsic motivation to use and specific learning situations; combine teaching concepts with specific marketing methods; and make full use of the digital network environment.

Based on the enterprise marketing strategic planning vision and investment conditions, it helps enterprises to select core marketing information management assets and other assets to combine into a portfolio of investment opportunities, so that marketing departments can create various services by in-sourcing or outsourcing, and make the services match with marketing business and strategic objectives by planning a comprehensive view analysis of relevant cost, value, risk, performance, and other elements.

Customer knowledge is organized and consists of structured customer information. Customer knowledge management capabilities are those business activities that directly serve to collect and analyze customer information, produce, and distribute customer knowledge, structure, and maintain customer relationship platforms, and maximize organizational effectiveness [19]. Customer knowledge management capabilities can provide a sustained competitive advantage that is difficult to imitate. These capabilities cannot be purchased, but can only be generated through business processes. It is one of the key forces behind the success of customer relationship management.

Through the accumulation and use of knowledge base and digital marketing operation process of knowledge-based service request and operation process functions, fault

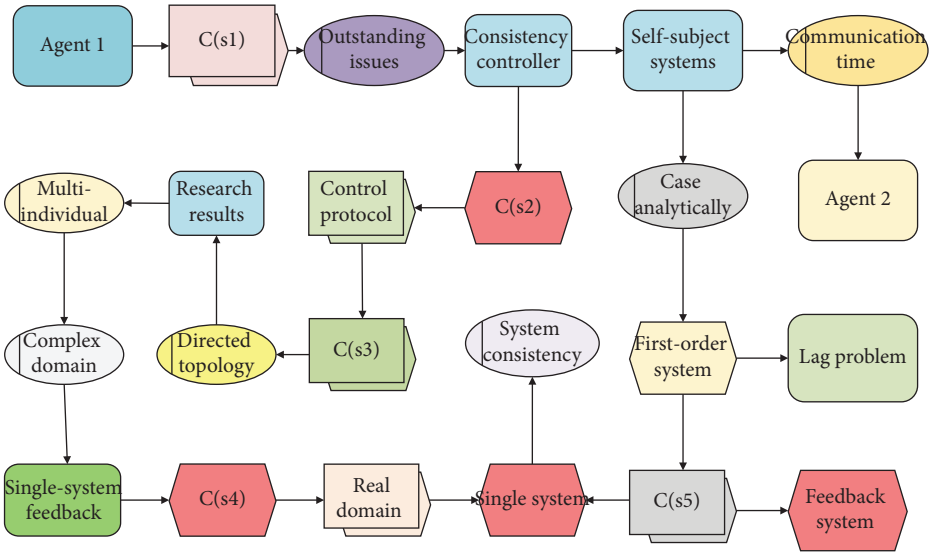

Figure 2: Distributed control topology of the multi-self-subject system.

management, event management, problem management, change management and configuration management are more transparent and controllable, service agility, continuity and cost optimization are realized, services are more reliable, and business continuity is enhanced, whichalso enhances the feasibility of marketing information technology. This improves the ability of marketing information technology to support the business in general [20]. It enables outsourced resources from different software teams to work according to consistent standards, thus achieving a balanced service capability across domains and teams and giving consumers a near-consistent service experience.

The e-business capability of an enterprise refers to the enterprise's capability of interacting with customers and business partners and completing commerce through the Internet. Specifically, it includes the strategic capability of an enterprise to use the Internet to share information, facilitate transactions, enhance customer service, and strengthen back-end integration. It is very important to realize the maximization of corporate profits. Products in stock also take some time to retrieve, prepare, pack, and load. This capability requires the organization's multilevel data processing architecture and network as the core configuration to support the formation. After removing the barriers between applications and integrating fragmented infrastructure products into a technology platform for e-business, enterprises are endowed with their unique personality and knowledge assets, which are closely integrated with their business and thus can bring competitive advantages, rather than mere technologies or products that can be traded routinely.

3.2. Marketing Management Analysis of Consumer Psychology. This paper focuses on the influencing factors of consumer word-of-mouth, self-efficacy, and consumer engagement behavior that affect the purchase intention of paid knowledge products through psychological empowerment, so the main research target is targeted at users who have used or are using online paid knowledge products.

In the questionnaire survey on the willingness to purchase online knowledge payment products, the gender ratio is relatively balanced, with 58.6% and 41.4% of the total sample being male and female respectively. From the age distribution of the subjects, we can see that the proportion of users between the three age groups is relatively evenly distributed, accounting for about 30% of the total number of the subjects, and the total number of users in these three age groups accounts for about 90% of the total [21]. This indicates that the core users who purchase and use knowledge payment products are mostly teenagers, young people, and middle-aged users. Analyzing the education of the sample users, the percentage of those with a college education or above is 70.9%, indicating that the education level of users of paid knowledge products is generally high. In terms of occupation distribution, office workers account for 61.8% and students account for 15.9%, which shows that most of the users are office workers, and considering the actual situation, office workers need to learn some knowledge and skills to improve their ability at work and have a greater demand for knowledge learning. After getting out of campus, the fragmented knowledge learning like knowledge payment service is more flexible in time and convenient in the way of learning, so online knowledge payment service is a good choice for office workers. In terms of income, only 20.4% of the users earn more than 10,000, which can be inferred that most of the users belong to the general working class.

This part is the descriptive statistics of the measurement results of the items measured by each variable, and the Likert scale is used for the measurement of the items, so the maximum value of each item should be 5 and the minimum value is 1. The mean value of all the items exceeds 3, and the survey respondents approve of the items in the questionnaire. The level of approval for consumer word of mouth, consumer psychological empowerment, and consumer

involvement behavior is high, as shown in Figure 3. Compared with the classic inventory control models, these models are more general and better reflect the real-world characteristics of many systems in actual production, manufacturing, and service industries.

To judge the stability and consistency of the measurement results systematically and accurately in the questionnaire, we need to measure the indicator of reliability, because reliability tests whether a measurement scale has good reliability of the method. In this study, the results were obtained by SPSS software, after importing the collected sample data into the software and conducting internal consistency tests. The indicators reflect the validity, where the factor loadings represent the level of explanatory power between the potential variables to the measured variables [22]. It is generally required that the factor loadings should be greater than 0.7 to be considered a good explanatory power. As can be seen from Figure 4, all the factor loadings of the variables are greater than 0.7, which is a strong explanatory power. Cronbach's alpha is one of the indicators to measure the reliability of the scale, and when Cronbach's alpha value is greater than 0.8, the reliability of the scale is excellent. As we can see from the table, the values of Cronbach's alpha for consumer word-of-mouth, self-efficacy, consumer involvement behavior, consumer psychological empowerment, self-brand association, and purchase intention are 0.856, 0.867, 0.895, 0.841, 0.834, and 0.913, respectively, all of which are greater than 0.8, indicating the high reliability of the questionnaire scale and suggesting that the CR means combined reliability, which is calculated from the factor loadings and indicates the internal consistency reliability. The values of CR are 0.88, 0.845, 0.892, 0.813, 0.827, and 0.902, which are all greater than 0.6 and meet the good standard, that lay a solid foundation for the development of the online knowledge payment industry.

In recent years, people's demand for quality of life is also increasing, the disposable income of residents is also increasing, and the economic foundation is becoming increasingly solid. Therefore, companies with high-quality standard design teams and a wide range of construction products will be more popular with consumers. The continuous development of the real estate industry will also increasingly increase the residential and office groups, for the building decoration industry will also be more favorable, ushering in new growth.

Timely entry of relevant product shipment information, and to ensure the accuracy and completeness of the information entered. If the entry of information on different categories of goods in the company's warehouse is accurate, then the sales order can be placed concerning the corresponding goods in the warehouse in the current period and can be associated with the product lot number information, so that it is easy to directly find the system internal inspection report form and send to customers. With the good foundation of the internal and external market environment, the key to how the online learning products and services of these related knowledge payment platforms can achieve good results is how to improve the target users and potential target users' willingness to purchase related knowledge

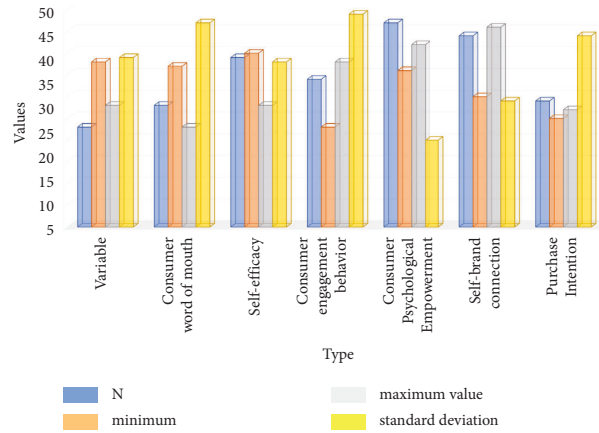

Figure 3: Description of variables.

payment products. And then thus avoid calling the warehouse management to ask for the product lot number or by loading the dead machine after loading the goods, and then by loading the warehouse to return to the domestic trade department housekeeping to print the inspection report form. In this situation both the risk of the batch and number error has increased the workload of cargo drivers, affecting efficiency. For example, the special needs of customers or customized goods of the shipping instruction notes are filled in timely and accurately, which can avoid the finished goods warehouse managers to call several times to confirm because of incomplete or unclear information, which increases the workload [23]. Moreover, the long-term accurate entry of relevant information is also the summary of special customer demand information, which is greatly beneficial to the work of information technology details.

4. Result Analysis

4.1. Optimal Control Strategy Results. Among them, the individual controller is mainly to improve the robustness of each self-subject, and the coupled controller ensures the fast consistency of the multisubject system. Both controllers use fractional-order controllers. First, a robust controller is designed to control individual self-subjects to satisfy the performance index based on the improved D-partitioning method. Subsequently, the multi-self-subject system is decomposed, and the design problem of the coupled controller is transformed into the stability problem of the subsystem. For each decomposed subsystem, the D-partitioning method is used to obtain the global stability domain of the coupled controller. In the resulting stability domain, the SIWPSO algorithm is used to find the optimal control parameters that maximize the convergence rate of the entire multi-self-body system. Finally, the effectiveness of the designed two-degree-of-freedom optimal control strategy is verified by two sets of simulations.

Observing Figure 5, the two-degree-of-freedom control strategy proposed in this paper has a faster convergence speed compared with the distributed fractional-order control strategy; compared with the GA algorithm, the control parameters obtained by using the SIWPSO algorithm are

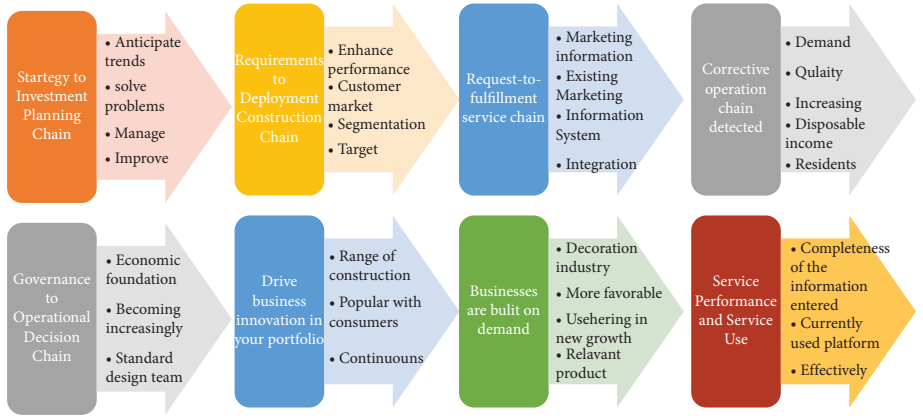

Figure 4: Marketing management model.

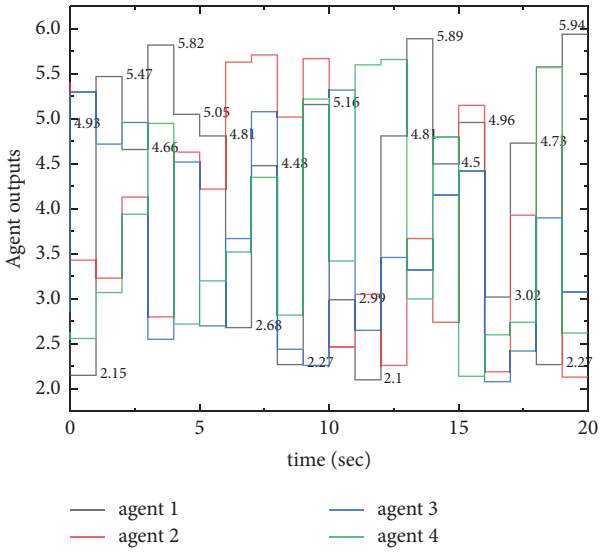

Figure 5: Simulation diagram of the response of the multi-self-body system.

better in terms of performance improvement. In summary, the fractional-order two-degree-of-freedom control strategy proposed in this paper has a good effect on the performance improvement of the fractional-order multi-self-body system. Members consider expected benefits and risks from pricing.

The essential feature of the cooperative control of the self-subject system is the global behavior formed by the local interaction of information among multiple individuals. The dynamic equations of each self-subject and the topology connecting multiple self-subjects are the two major decisive factors affecting the realization of cluster behavior in multisubject systems. Therefore, the key to the study of multi-self-subject systems lies in how to design cooperative controllers to achieve consistent behavior of multi-self-subject systems, given the dynamics model of individuals and the topology between multiple self-subjects.

Based on the multientry and multiexit frequency domain block diagram of the multiple self-subject systems, the design method of the optimal distributed PID controller for the first-order time-lag multiple self-subject systems in the case of a directed graph are studied. By decomposing the multisubject system using matrix theory, the consistency problem of the multisubject system is converted into the stability problem of multiple subsystems with complex coefficients. For the subsystems with complex coefficients, the stability ranges of the corresponding distributed PID control parameters are obtained analytically. The global stability domain of the distributed PID controller is obtained by intersecting the stability ranges of all subsystems. Finally, an improved PSO algorithm is used to obtain the optimal PID control parameters satisfying different performance indexes.

First, customer perceived value from the utility perspective is often defined as the overall evaluation of the level of utility of a specific product or service based on a comprehensive weighing of perceived benefits and perceived losses, so that the higher the level of utility brought by a specific product or service, and the smaller the price paid for it, the greater the customer perceived value. Secondly, customer perceived value from the rational perspective is often defined as the trade-off between perceived benefits and perceived sacrifices, which affects both customer purchase decisions and customer satisfaction and loyalty, under the constraints of information imbalance and limited rationality, by assessing and calculating the benefits and sacrifices brought by obtaining a specific product or service. Again, customer perceived value from an empirical perspective is often defined as the perceived experience and perceived preference of customers in terms of product attributes, product efficacy, and usage results based on historical experience and social evaluation, through the evaluation of their interaction with specific products and services. Based on this, this paper applies members' fairness concern behavior and risk aversion behavior to pricing decision models in different scenarios.

In this paper, we will explore the marketing effectiveness of coordination companies' pricing strategies from two dimensions: the perceived price of coordination services and the perceived risk of coordination services. On the one hand, the perceived price of logistics service is the key factor that restricts the purchase intention and purchase behavior of logistics service, rather than the real market price of logistics

service; on the other hand, the perceived risk of logistics service contains two aspects of perceived business function risk and perceived social psychological risk, the former is reflected in the concern of damage to the organization's interests, the latter is reflected in the business manager or negotiation representative's concern of damage to personal development prospects as shown in Figure 6.

Considering the dynamic game situation, it is demonstrated by inference that members' risk-averse behavior leads them to develop a lower price strategy to reduce their own risk. Unlike the price strategy, the retailer's service level is not influenced by the risk attitude. Numerical experiments to analyze members' gains reveal that the risk-averse behavior of supply chain members reduces their profits but increases each other's gains. From the perspective of the supply chain, the retailer's risk-averse behavior is beneficial for increasing supply chain profits, while the manufacturer's risk-averse level has the same impact when maintained at a low level.

To reflect the game strategies of members more realistically, the article considers that members adjust their price strategies based on limited rational expectations and adjust their retail service strategies based on adaptive mechanisms. The market needs to be focused. Concentration refers to focusing on a specific customer group, part of a specific product line, or focusing on a specific segment of a specific regional market. By inference, it is found that too fast price adjustment is detrimental to the stability of decision-making and can cause the system to enter a multiplicative cycle bifurcation or even chaotic state. The adaptive adjustment strategy of the retailer's service will make the service level eventually remain at a stable level. In addition, it is found that the risk-averse behavior of supply chain members facilitates the stability of their pricing, and in most of the cases shows the opposite effect on the adjustment of the other party's strategy. Numerical analysis of membership gains reveals that system instability is detrimental to the manufacturer or retailer, but can increase the gains of the other party.

4.2. Analysis of Marketing Management Results of Consumer Psychology. Generallyspeaking, consumers who buy decorative building materials come from a wide range of sources, but are not concentrated enough. Centralized purchase of building materials can only make the decoration process more convenient, while the main buyers of building materials are mostly decoration enterprises, individual families or individuals of different sizes, and there are more types and quantities of purchasing groups. These groups will compare products to determine a more competitive market.

Buyers in the decoration building materials market generally include interior decoration engineering units (we call them to group purchase customers) as well as end consumers. Buyers and product dealers will have certain disputes about the price, specifically the sellers by reducing the selling price, but also to meet more customer demand, and then for higher profits or sales, this way will lead to competition between the two. Throughout the development of the

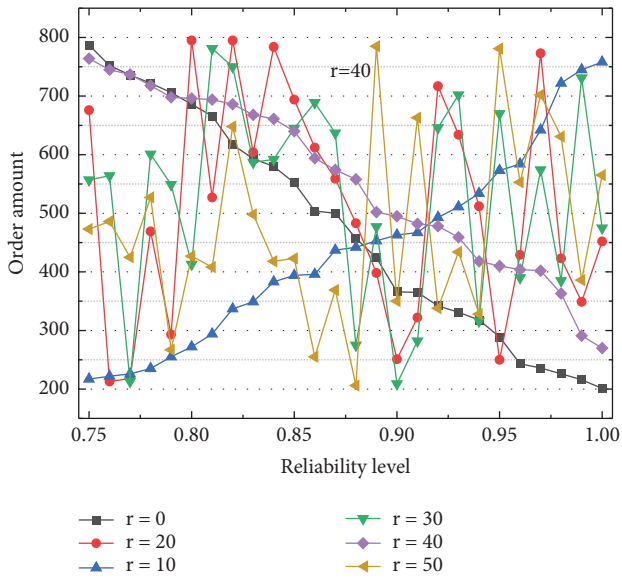

Figure 6: The influence of reorder point and service reliability level on optimal order quantity.

retail industry, because there is no advanced technology support in the past, if companies want to grab customers, they can take a more simple and brutal approach, and there will be a shallower concept, usually to improve service capabilities to improve the competitive advantage. With the continuous development of the economy and society, today should no longer be limited to improving the competitiveness of products to improve the quality of service, because the needs of consumers, expectations, consumption habits, etc. are far higher than the services that businesses can provide, businesses should think more from the above aspects.

The system construction mainly starts from customer experience to strengthen the operation quality. First, the quality of the shopping environment, from the external senses of customers, and constantly improve the overall shopping environment of the project site to enhance the shopping comfort of customers, as shown in Figure 7. Among them, the price of architectural decoration is priced according to the complexity and quantity of the construction process.

The approximate chi-square of Bartlett's sphericity test was 4811.882, with 276 degrees of freedom, a significance of 0.000, and a p-value less than 0.01, which is extremely significant, indicating that the overall validity of the questionnaire is suitable for factor analysis. Therefore, factor analysis was conducted using principal component analysis and maximum variance method, and seven factors were extracted, with a cumulative variance explained of 76.814%, which meets the requirements, and a rotated component matrix was obtained, as shown in Figure 8, and it was observed that the loading values of each factor were above 0.5, indicating that the questionnaire scale has good structural validity.

The research problem can be further extended by solving the optimization constraint model with other improved

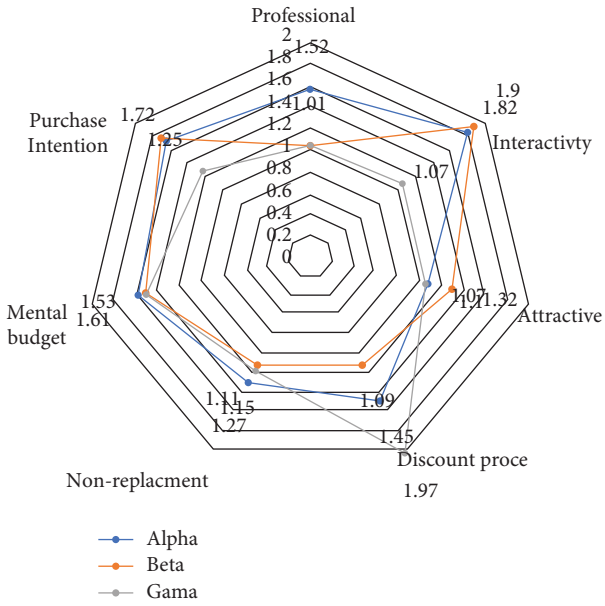

Figure 7: Reliability analysis of each variable.

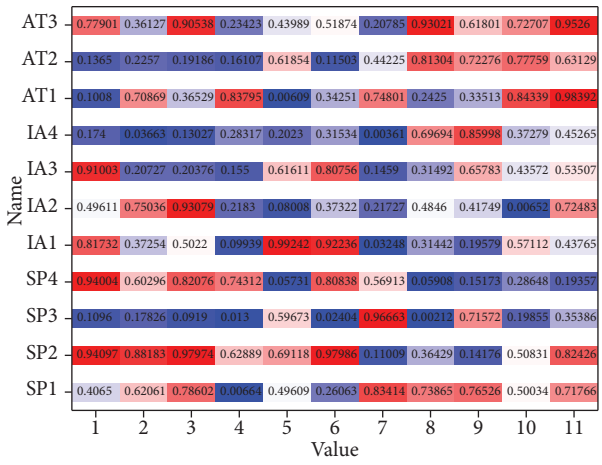

Figure 8: Factor analysis.

algorithms, by analyzing the service system, the steady-state distribution of other queueing theory models, or by studying other distributions of the supply lead time, such as the PH distribution, which can better portray the reality of the situation. Design can be used as a value-added service for home decoration, but this form often fails to satisfy consumers and market to the final effect. The service system can also be further extended to consider the case where customers arrive in bulk, or where customers have multiple different demands for the final product or customer service. In addition, this paper only specifically investigates the effect of price on order quantity, but other characteristic quantities, such as the effect of reorder point r on order quantity, can also be further studied in more depth to analyze the overall effect of different parameters on this service-inventory system at a fixed reorder point. However, the more complex functions of reorder point and order quantity may make the analytic expressions of the overall model function highly complex, thus making it impossible to analyze the analytic properties of the objective function.

5. Conclusion

This study verified the relationship between target distance positively moderating mental stimulation and task meaning perception and consumer engagement. Experiment 2 used a mental simulation intergroup experimental design to verify the moderating effect of goal distance on the relationship between mental stimulation and task meaning perception and consumer involvement in virtual CSR co-creation. The interaction between mental stimulation and target distance on task meaning perception was significant, and the degree of target distance played a positive moderating role between mental stimulation and task meaning perception, that is, the effect of process simulation on task meaning perception was stronger at a closer target distance than at a farther target distance; and the interaction between mental stimulation and target distance on consumer engagement was significant, and the degree of target distance played a positive moderating role between mental stimulation and task meaning perception. It enables the marketing department to create various services through insourcing or outsourcing, and through planning a comprehensive view analysis of related cost, value, risk, performance, and other elements, to make the service consistent with the marketing business and strategic goals. The interaction between mental stimulation and target distance on consumer engagement was significant, with the proximity of target distance positively moderating the relationship between mental stimulation and consumer engagement in virtual CSR co-creation. This finding identifies the positive effect of target distance on co-creation behavior, validates the validity of "target gradient help," and enriches the research context of target gradient theory.

Data Availability

The data used to support the findings of this study are available from the author upon request.

Conflicts of Interest

The author declares no conflicts of interest.

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