Research Article

A Study on Parents' Willingness to Pay for Online Learning of Middle School Students Based on Perceived Value

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The purpose of this study is to conduct a mixed research from the perspective of customers perceived value and objective situational factors. The online learning platform for middle school students has a special situation of users (students) using and customers (parents) paying. When it studies the influencing factors of customers (parents) willingness to pay, it puts aside the interference of users' using influencing factors and conducts a separate study. Firstly, the exploratory research based on the grounded theory carries out category extraction and model construction. Secondly, through empirical research to identify the specific relationship between the variables, we finally get the specific influencing factors of perceived value that affect customers' willingness to pay. In objective situations, social influence directly affects customers' willingness to pay. Online comments play a positive moderating role in the impact of perceived value on willingness to pay.

1. Introduction

In recent years, many countries have made a lot of development and investment in digital learning technology and online learning platform [1]. From traditional classroom teaching to online learning, great changes have taken place in all aspects of education [2, 3]. With the vigorous development of online education, research perspectives are also diversified. Some scholars study on college students and teachers [4, 5]. Some scholars focus on the adoption stage and continuous use stage of online learning platform [6, 7]. Some scholars mainly study open online course MOOCs [8–11]. In general, the research on the willingness to pay for online education of middle school students is still in the blank stage. This paper will study the willingness to pay for online learning platform of middle school students' parents.

This study focuses on the willingness of middle school students' parents to pay for online learning platform. Most of the middle school students are between 12 and 18 years old and have a certain subjective awareness of learning. Most of the middle school students' expenses mainly come from

their parents. Understanding the parents' willingness to pay for students' online learning plays a vital role in the sustainable development of online learning platform.

2. Research Design

At present, there are few studies on the parents' willingness to pay for online learning of middle school students, even fewer references. It is difficult to determine the factors that influence the parents' willingness to pay, so the grounded theory research is firstly conducted to clarify the influencing factors. Secondly, the relationship between variables is explored through quantitative research. Thus, mixed research method is used in the design.

2.1. Research Process (Grounded Theory). There are few studies on parents' willingness to pay for online learning of middle school students. In order to better explore the theoretical mechanism, this paper uses the grounded theory method to analyze the text in the exploratory research stage

and strives to summarize, analyze, and improve the relevant payment mechanism in the original text data. The sampling of grounded theory is theoretical sampling; that is, in order to propose a specific concept or construct a theory, we make a purposeful sampling selection. The selected samples must be closely related to the research topic and have sufficient representativeness [12]. Therefore, the research objects of this paper are composed of students' parents who have used online learning platforms. In order to ensure the comprehensiveness of the experimental results, in the study, parents of junior high school students and parents of high school students were selected as interview subjects. The basic situation of the respondents is shown in Table 1. Due to the epidemic situation, semistructured interviews were conducted through the Tencent Video Conference platform for four days (December 20, 2020–December 23, 2020). Five respondents were interviewed online every day, and each interview lasted for an average of 30 minutes. In return, each interviewee can obtain one month of free online learning opportunity for their child (January 21, 2021–February 20, 2021). The interview questions are mainly about the parents' choice of online learning platform, the reasons of platform selection, the courses purchased, the influencing factors of curriculum selection, the information concerned, the purchase concerns, and the willingness to pay. Under the authorization of parents, the interviewer backups and records the interview content, and on this basis, the text is formed and analyzed theoretically. The whole process consists of open coding, principal axis coding, selective coding, and conceptual model.

2.2. Category Extraction and Model Construction. The first step to extract the influencing factors of middle school students' parents' willingness to pay for online learning is open coding. In the process of open coding, the original text is encoded sentence by sentence, and the scattered and specific concepts are transformed into abstract and theoretical concepts. The repeated and irrelevant information is deleted, and finally 65 initial categories are formed, as shown in Table 2 (see Table 3 for details).

The second step is principal axis coding. The purpose of principal axis coding is to further analyze the initial category on the basis of open coding, form the main category and the subcategory, and discover the potential logic and generic relationship between categories. Through exploratory analysis of logical relations, 33 subcategories and 11 main categories are finally formed. Among them, teaching information, teachers and students' information, perceived risk, perceived cost, recommendations from people around, external publicity, help to improve learning, help to improve ability, perceived value, online comments, and willingness to pay are 11 main categories, detailed in Table 4 (see Table 5 for details).

The third step is selective coding, which reintegrates the "core class" and further integrates the content of principal axis coding after systematic analysis of the discovered concept classes. The teaching information and teachers' and students' information are reclassified as course information,

TABLE 1: Basic information of respondents.

Basic items	Classification	Number of samples
Gender	Male	8
	Female	12
Children's grade	Junior middle school	13
	High school	7
Income level	Below 2000	1
	2000–3500	6
	3500–5000	4
	5000–6500	4
	6500–8000	2
	Over 8000	3

and the surrounding people's recommendation and external publicity are classified as social influence. Help to improve learning and help to improve ability are classified as perceived usefulness. After the integration of 11 main categories, 8 concepts are finally formed, as detailed in Table 6. By mining the relationship between categories to build the relationship between concepts, we can build a theoretical framework. For example, curriculum information affects perceived usefulness and perceived value, perceived usefulness, perceived risk and perceived cost affect perceived value, social influence and perceived value affect willingness to pay, and online comments moderate the relationship between perceived value and willingness to pay, as shown in Figure 1.

3. Variable Interpretation and Hypothesis

3.1. Course Information (CI). At present, there is no research on the definition of course information directly, so this paper draws on the relevant description of product information to analogy course information. Information plays a dual role both as a provider and a recommender for users. Information can be used either as a provider to provide products or services to users or as a recommender to help users make decisions [13]. For online shopping, rich objective product information helps buyers make decisions. Zhou et al. believe that if online retailers can provide comprehensive, timely, and persuasive information on products or services on Weibo, online retailers' brand equity and consumers' purchase intention will be enhanced [14]. For the construction of online learning platform, course information for students and parents is an important way to shape customer perceived value. Based on the above research results, this paper puts forward the hypothesis:

Hypothesis1: course information has a positive impact on perceived usefulness of middle school students' parents in online learning platform.

Hypothesis 2: course information has a positive impact on the perceived value of middle school students' parents in online learning platform.

3.2. Perceived Usefulness (PU). According to the definition of perceived usefulness by Zhou et al. [14], this study defines perceived usefulness as the degree to which the curriculum

TABLE 2: Open coding (part).

Open coding	Original statement
B1 course flow arrangement	Focus on the learning process of some courses
B2 fragmentation of course time	It's better if the course is a fragment chemistry seminar. Twenty minutes a day is more suitable for my children
B3 teaching time	When I buy online classes for my children, I will pay attention to the class time which cannot conflict with school or extracurricular classes
B4 sequence of content arrangement	Learn about the order in which knowledge can be learned through online courses
B5 the difficulty of course content	The difficulty of the course, the key and difficult points of the curriculum is my main concern
B6 the content is clear	The introduction of online course content must be reasonable and clear
B7 syllabus	First look at the teaching box of the catalog
B8 course content system	I will buy systematic classes for my children, including preview class, basic class, intensive class, etc
B9 course supporting services	Before purchasing the course, I will check the supporting services related to the course, such as whether there are supporting exercise solutions
B10 teacher's experience	Focus on previous experience of the course instructor

TABLE 3: Open coding.

Open coding	Original statement
B1 course flow arrangement	Focus on the learning process of some courses
B2 fragmentation of course time	It's better if the course is a fragment chemistry seminar. Twenty minutes a day is more suitable for my children
B3 teaching time	When I buy online classes for my children, I will pay attention to the class time which cannot conflict with school or extracurricular classes
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B6 the content is clear	The introduction of online course content must be reasonable and clear
B7 syllabus	First look at the teaching box of the catalog
B8 course content system	I will buy systematic classes for my children, including preview class, basic class, intensive class, etc
B9 course supporting services	Before purchasing the course, I will check the supporting services related to the course, such as whether there are supporting exercise solutions
B10 teacher's experience	Focus on previous experience of the course instructor
B11 teaching methods	Before purchasing, I will consider whether it is a live class or a video class
B12 teacher qualification	Before buying courses for children, I will pay attention to the qualifications of teachers
B13 teacher style	The final purchase of courses for children is mainly influenced by the teacher. Consider whether the teacher's teaching style and teaching method can be accepted by children
B14 teacher's detailed introduction	Buying lessons for children, I mainly focus on the teacher's detailed introduction and then decide
B15 teachers' moral character	When I choose courses for my children, I also pay attention to the teacher's conduct
B16 excellent students	I mainly focus on the examination results of the students in the online mathematics class, which shows whether the students are good at learning and the teachers are good at teaching
B17 waste of time	I am afraid that the course is not good, it not only costs money but also wastes children's time
B18 care for children's eyes	Curriculum design should be reasonable to protect children's eyes
B19 children do not like it	I'm worried that children do not like this course and cannot learn anything after buying it
B20 the learning effect is not good	I'm worried about the children's understanding, acceptance and help of the course
B21 poor learning outcomes	I'm worried that after finishing the final exam, my child's grades are still not good
B22 system delete	I'm afraid that after I pay the money, their system will delete me. The money will be wasted and the children will not be able to attend class
B23 waste of money	The main fear is that children's learning will be ineffective and the money will be wasted
B24 focus on cost performance	Generally, when I buy, I will also consider the cost performance ratio. If the price is not particularly high, I will not have any worries. If the price is very high, I will depend on the demand of children
B25 the price is within the acceptable range	If the price is particularly high, I will not consider it. On the premise of ensuring the quality of teaching for children, I will also be within my own range
B26 beyond affordability	If the course is too expensive, I cannot afford a training class
B27 courses need to be paid	Although there are some free courses on some platforms, many courses child needs are paid for.
B28 high price	The online class fees I reported for my children are very high

TABLE 3: Continued.

Open coding	Original statement
B29 charging interval	I will pay attention to the number of one-time paid courses, whether it is paid once every three months or half a year.
B30 teacher's recommendation	I Will choose the platform recommended by the teacher.
B31 recommended by parents	Parents exchange group will say whose class is good, I will go to pay attention to those teachers.
B32 recommended by parents	That teacher is very famous in Beijing. Many parents say that the teacher teaches well
B33 parents' meeting consultation	Because the children's math is not good, when holding the parents' meeting, I asked other parents which math platform taught well
B34 recommended by friends	At the beginning, I asked my friend, whose children are very good at learning. I asked him which platform is better. He recommended some platforms to me, and then I chose them by myself
B35 network media publicity	When I saw the tiktok, the APE was the most advertised, and my first contact with the net was APE counseling, so I chose this platform.
B36 cope with exams	The main consideration is that children can cope with the exam
B37 achieve the goal	Does it really help her to achieve her goal
B38 improve the level of Chinese	The extracurricular class I reported to him is mainly Chinese class. My children's Chinese is not good. I hope that they can learn Chinese better through the course
B39 focus on teaching	Before purchasing, I will pay attention to the practicality of the course content. It's better to talk less, focus on the key points, and pay attention to the summary teaching of key knowledge points
B40 the needs of the curriculum	What I'm thinking about is that when the children have a demand for this course, I'll consider whether to buy it or not
B41 the content meets the needs of children	Buy online classes mainly to see if there is any part of the content that children want to improve
B42 emergency learning	I usually buy some urgent online lessons for children to solve their learning problems.
B43 practical course	Attending classes is also a waste of children's time. I will only choose to buy online courses that are very practical for children
B44 improve children's ability	I will have the goal to choose the curriculum to improve the child's ability in some aspects
B45 improve mathematical thinking	Girls' thinking ability is weaker than boys, so I want to exercise my child's thinking more to make mathematics better
B46 beyond expectations	I will pay for quality courses, which can meet the needs of children's learning content or exceed expectations
B47 obvious progress	Hope that children can make obvious progress through learning
B48 the effect is remarkable	My children especially like the teacher's lessons. Learning effect is particularly good
B49 learn the key methods	In the platform course, my children are very good at mathematics and simple methods
B50 targeted learning	I will report online courses for children's weaknesses. If it is a targeted course, I will choose this course.
B51 explanation of regional examination questions	I will consider the platform for the targeted explanation of regional examination questions. Because the examination syllabus of each province is different, the depth is different, and the scope is different. I Will choose such an online learning platform for children.
B52 platform major and main courses	I will choose a professional platform for my children and choose the main courses.
B53 the course arrangement is reasonable	The platform is very professional. It have arranged when my children will learn English and when they will learn mathematics during the holidays
B54 building learning group	Online class must have a management mode, such as building a group to punch in, which is not only conducive to two-way communication, but also promotes children to keep learning.
B55 mock examination	The reason for choosing this platform is that children can have a simulated test every month, and the simulated test will also be explained by video.
B56 intelligent question bank	The question bank of this platform is very large, and each question in the question bank has a video explanation in addition to the text explanation.
B57 course playback does not expire	The course is live broadcast, and you can look back after the live broadcast. Unlike some platforms that expire after one or two years, this platform does not expire.
B58 Weibo Q & A	Microblog has a question and answer system. If children have any questions about learning, they can leave a message under the teacher's microblog, and the teacher will reply.
B59 comments on teaching content	The main reason for choosing this platform is that there are many comments on the teaching content under its courses, which are very real, and its popularity is also very high.
B60 impact assessment	I mainly look at the evaluation of learning effect. If learning is effective, my children's learning may also be effective.
B61 teacher evaluation	Look at the buyer's course evaluation, and read all the teacher's evaluation on the course website.
B62 celebrity effect	The reason for choosing this online course is that the teacher is famous and has celebrity aura, which is easy to be accepted by parents, and they feel reliable. And only online class is suitable for my children.

TABLE 3: Continued.

Open coding	Original statement
B63 public praise	I'll search for these courses. Everyone tends to choose which platform I will choose for children, just like taobao shopping, mainly depends on public praise.
B64 payment selection	I will choose a professional platform for my children, because it is really well done, and the results of the class are expected. In addition, I think that if there is a reward mechanism and good service, it will attract children to continue learning.
B65 payment basis	I will consider the platform information, teacher's recommendation, parents' recommendation, online comments and so on, and finally choose the most suitable one for children.

TABLE 4: Spindle code (part).

Main category	Subcategory	Primitive category
C1 teaching information	M1 curriculum information	B1 course flow arrangement
		B2 fragmentation of course time
		B3 teaching time
	M2 course content information	B4 sequence of content arrangement
		B5 the difficulty of course content
		B6 the content is clear
		B7 syllabus
	M3 course service information	B8 course content system
		B9 course supporting services
C2 teacher and student information	M4 teacher information	B10 teacher's experience
		B11 teaching methods
		B12 teacher qualification
		B13 teacher style
	M5 excellent student information	B14 teacher's detailed introduction
		B15 teachers' conduct
C3 perceived risk	M6 time risk	B16 excellent students
		B17 waste time
	M7 physical risk	B18 care for children's eyes
		B19 children do not like it
	M8 study risk	B20 bad learning effect
		B21 bad learning result
C4 perceived cost	M9 system risk	B22 system delete
		B23 waste money
	M10 sunk cost	B24 focus on cost performance
		B25 affordable price
	M11 cost performance	B26 beyond affordability
		B27 courses need to be paid
	M12 price affordability	B28 high price
		B29 charging interval
C5 recommendations from people around	M13 spend money on learning	B30 teacher's recommendation
	M14 high curriculum fees	B31 recommended by parents communication group
	M15 charging frequency	B32 recommended by parents
	M16 teacher's recommendation	B33 parents' meeting consultation
	M17 parents' recommendation	B34 recommended by friends
	M18 recommended by friends	

content perceived by middle school students' parents matches their children's needs. Since Fred proposed the TAM model [15], although with the continuous development of different scholars, perceived usefulness and perceived ease of use have been assumed to be factors affecting the use of technology [6]. Consumers will judge the consequences and behaviors after taking behaviors according to their perceived usefulness. This paper takes perceived

usefulness as a part of perceived benefits and perceived usefulness as a antecedent variable of perceived value to explore the impact of perceived usefulness on perceived value and willingness to pay. Perceived usefulness has been widely used in information systems and technology research, and as an important indicator of forecasting technology adoption [16, 17]. Based on the above research results, this paper puts forward the hypothesis:

TABLE 5: Spindle code.

Main category	Subcategory	Primitive category
C1 teaching information	M1 curriculum information	B1 course flow arrangement B2 fragmentation of course time B3 teaching time B4 sequence of content arrangement
	M2 course content information	B5 The difficulty of course content B6 The content is clear B7 syllabus B8 course content system
	M3 course service information	B9 course supporting services
C2 teacher and student information	M4 teacher information	B10 teacher's experience B11 teaching methods B12 teacher qualification B13 teacher style B14 teacher's detailed introduction
	M5 excellent student information	B15 teachers' conduct B16 excellent students
C3 perceived risk	M6 time risk	B17 waste time
	M7 physical risk	B18 care for children's eyes B19 children do not like it
	M8 study risk	B20 bad learning effect B21 bad learning result
	M9 system risk	B22 system delete
C4 perceived cost	M10 sunk cost	B23 waste money
	M11 cost performance	B24 focus on cost performance
	M12 price affordability	B25 affordable price B26 beyond affordability
	M13 spend money on learning	B27 courses need to be paid
	M14 high curriculum fees	B28 high price
	M15 charging frequency	B29 charging interval
C5 recommendations from people around	M16 teacher's recommendation	B30 teacher's recommendation
	M17 parents' recommendation	B31 recommended by parents communication group B32 recommended by parents B33 parents' meeting consultation
	M18 recommended by friends	B34 recommended by friends
C6 external publicity	M19 media publicity	B35 network media publicity
C7 help to improve learning	M20 improve learning outcomes	B36 coping with exams B37 achieve the goal B38 improve the level of Chinese B39 focus on teaching
	M21 meet learning needs	B40 the needs of the curriculum B41 the content meets the needs of children
	M22 curriculum practicality	B42 emergency learning B43 course application
C8 help to improve ability	M23 improve learning ability	B44 improve children's ability B45 improve mathematical thinking
C9 perceived value	M24 the learning effect is remarkable	B46 beyond expectations B47 obvious progress B48 the effect is remarkable
	M25 master key learning methods	B49 learn the key points B50 targeted learning
	M26 the course is highly targeted	B51 explanation of regional examination questions B52 platform major and main courses
	M27 the platform is highly professional	B53 the course arrangement is reasonable B54 building a learning group B55 mock examination
		B56 intelligent question bank
	M28 perfect course service	B57 course playback does not expire B58 microblog Q & A

TABLE 5: Continued.

Main category	Subcategory	Primitive category
C10 online comments	M29 content review	B59 content review
	M30 impact assessment	B60 impact assessment
	M31 teacher evaluation	B61 teacher evaluation
	M32 word of mouth review	B62 celebrity effect B63 public praise
C11 willingness to pay	M33 course payment	B64 payment options B65 payment basis

TABLE 6: Selective coding.

Concept	Main category
N1 course information	C1 teaching information C2 teacher and student information
N2 perceived risk	C3 perceived risk
N3 perceived cost	C4 perceived cost
N4 social influence	C5 recommendations from people around C6 external publicity
N5 perceived usefulness	C7 help to improve learning C8 help to improve ability
N6 perceived value	C9 perceived value
N7 online comments	C10 online comments
N8 willingness to pay	C11 willingness to pay

FIGURE 1: Model and hypothesis.

Hypothesis 3: perceived usefulness has a positive impact on perceived value of middle school students' parents in online learning platform.

3.3. *Perceived Risk (PR)*. Hunter et al. divide perceived risk into two parts: risk importance and risk probability. In the context of e-commerce, the perceived risk of purchasing

decisions originates from the buyer's perception of the importance of the potential negative consequences of purchasing wrong products and the probability of making wrong decisions [18]. Perceived risk reflects uncertainty, loss, and out of control over the purchase of products or services. This paper takes perceived risk as a part of perceived loss in perceived value and explores its impact on perceived value from the nonmonetary perspective of perceived loss. In general, perceived risk has a negative impact on the perceived value of products/services purchased by consumers. Under uncertain conditions, customers tend to avoid risks. Based on the above research results, this paper puts forward the hypothesis:

Hypothesis 4: perceived risk has a negative impact on perceived value of middle school students' parents in online learning platform.

3.4. Perceived Cost (PC). Perceived cost (perceived fee or perceived price) is the monetary transaction cost paid by consumers when purchasing products or services [19]. Kim and Gupta defined the perceived price as the perceived price level of the target price compared with the reference price of customers [20]. Generally, customers cannot accurately remember the actual price of the purchased goods. On the contrary, they will define the price of the purchased goods by their own unique coding method, or higher than or lower than the actual price. In this paper, perceived cost is regarded as a part of perceived loss in perceived value, and its influence on perceived value is explored from the monetary perspective of perceived loss. Online learning platform provides courses for students. Parents pay for courses. Parents' perceived cost of online learning platform courses affects their perceived value of courses. Based on existing research results, this paper puts forward assumptions:

Hypothesis 5: perceived cost has a negative impact on perceived value of middle school students' parents in online learning platform.

3.5. Perceived Value (PV). Perceived value is defined as consumers' overall evaluation of the utility of a product or service, which is determined by consumers' perception of what they get and what they give [21]. The two dimensions of perceived benefit and perceived sacrifice are equally important for the evaluation of perceived value [22]. Perceived value can be increased by increasing perceived benefits and decreasing perceived payout, and the total perceived value can be obtained by comparing the net benefits of perceived benefits and perceived sacrifice [23]. This is a comprehensive process of perception trade-off. In the process of research, this paper measures the perceived value by considering the perceived gain and perceived sacrifice. Research shows that the perceived value of products or services in the Internet environment has a positive impact on the behavioral intention of using and purchasing [24, 25]. The learning behavior of middle school students on the online learning platform is essentially that the online learning platform provides a learning environment and learning services for

middle school students, so that middle school students can obtain the corresponding knowledge through the corresponding online products.

Hypothesis 6: perceived value of online learning platform has a positive impact on middle school students' parents' willingness to pay.

3.6. Social Influence (SI). Social influence represents the pressure of subjective norms, which is defined as "perception of group influence on an individual's decision" [1]. When individuals make decisions, they are often exposed to the opinions of others, especially influenced by family members, friends, colleagues, or celebrities. We call this group reference group (RG). Compared with the old users, new users have less cognition of products or services and no previous experience, so new users tend to rely on the evaluation and cognition of the reference group for judgment [26]. In the e-learning environment, the reference groups of students are mainly friends and classmates [27]. In the case that parents of middle school students generally pay more attention to their children's learning situation, parents are more cautious about their children's online learning platform selection and final payment. Based on the existing research results, this paper puts forward the following hypotheses.

Hypothesis 7: social influence has a positive impact on middle school students' parents' willingness to pay for online learning platform.

3.7. Online Comments (OC). Zhao et al. believed that online comments are online reviews conducted by consumers in the form of text [28]. In their research, Wang et al. defined eWOM as potential, realistic, or previous customer's positive or negative comments on corporate products or enterprises transmitted to others or institutions through the Internet [29]. The study by Parry and Kawakami defines virtual word-of-mouth as an online communication between consumers who have never met [24].

Online reviews can effectively reduce perceived risks and uncertainties of customers [30]. Consumers believe that both positive and negative online reviews are superior to information provided by product providers or service providers, and they will be regarded as important reference factors when making purchase and purchase decisions. Some studies have shown that online comments affect consumers' behavior [31, 32]. Consumers obtain more authentic reference information through online comments as the basis for decision-making, affecting payment behavior. With the development of online learning platform, relevant enterprises are also exploring how to use online comments to influence consumers' purchase decisions and adjust marketing strategies by evaluating the impact of online comments. Based on the above research, the paper puts forward the hypothesis:

Hypothesis 8: online comments have a positive moderating effect on perceived value and middle school students' parents' willingness to pay in online learning platform.

3.8. Conceptual Model. When constructing the model of parents' willingness to pay on the online learning platform for middle school students, seven variables affecting the willingness to pay are extracted based on grounded theory, which are course information, perceived usefulness, perceived value, perceived risk, perceived cost, social influence, and online comments. In the process of model construction, by mining the relationship between categories and combing the relationship between variables in the literature, it is finally determined to form a payment willingness mechanism model based on perceived value theory. Based on the theory of perceived value, perceived value includes perceived benefits and perceived losses. Therefore, course information and perceived usefulness are regarded as variables affecting perceived benefits in perceived value. Perceived risk and perceived cost are divided into variables affecting perceived losses. External situational variables include social influence and online comments. Social influence focuses on the impact of group opinions closely related to buyers on their willingness to pay. Online comments focus on the impact of comments and opinions of strangers on products needed and buyers' willingness to pay. The external situational factors are more comprehensive by classifying groups that affect buyers' willingness to pay. Such variable classification and analysis form the theoretical model of this study. Figure 1 shows the model and assumptions.

4. Empirical Study

4.1. Questionnaire Design. After grounded theory and variable definition, this paper explores the specific relationship between variables through empirical research. The questionnaire mainly includes two parts: the basic information part and the paper structure research part. The former focuses on the gender, age, education level, and income level of the respondents, and the latter focuses on the attitude of the respondents to the dimensions related to the willingness to pay for online learning platforms. Since the measurement items in the structural part of the paper are initially English, in order to ensure semantic equivalence, the questionnaire follows the procedure of reverse translation. Two translation experts in the online education industry are invited to translate English items into Mandarin, and to retranslate ordinary topic items into English. The problem of translation inconsistency is solved. The five-point Likert scale was used for the related items in the structure of the paper, ranging from 1 "disagree" to 5 "agree." Combined with the specific semantic expression of online learning platform, four items of perceived value (PV) are adapted from Wang et al. [19]. The three items of the course information of perceived benefit in perceived value are adapted from Chiu et al. [33] and Zhou et al. [14], and the three items of perceived

usefulness are adapted from Fred [15]. The three items of perceived risk and perceived cost in perceived value are adapted from Zhao et al. [28] and Wang et al. [19]. Three items of social influence in external situational factors and four items of online comments were adapted from Mehta et al. [1] and Zhao et al. [28]. The four items of dependent variable willingness to pay are adapted from Raghu et al. [34].

4.2. Data Collection and Analysis. The research subjects of this study were parents of middle school students who paid for online learning platform courses. Participants in the empirical phase were asked to answer all the items in the questionnaire according to their payment experience of online learning platform. This study adopts the sampling survey method, through the communication with the cooperative school, and finally decided to focus on three days (February 5, 2021 to February 7, 2021) for online sampling survey. A total of 900 questionnaires were distributed through the online survey platform (questionnaire star), and 792 questionnaires were recovered. Finally, 745 valid data samples were obtained for empirical analysis. The recovery rate and effective rate of the questionnaire were 88% and 94%. The criteria for judging invalid questionnaires were as follows. (1) There were too many missing items in the questionnaire; (2) all the answers to the questions are the same; (3) the answers before and after the questions have obvious contradictory response.

In this paper, SPSS22 and AMOS24 are used to analyze the data of three parts. SPSS is mainly used for data coding, cleaning, and descriptive statistical analysis. Amos is mainly used to analyze the reliability, discriminant validity, and confirmatory factor analysis (CFA) of the measurement model, and to verify the hypotheses and regulatory effects of structural equation model through Amos.

5. Results

5.1. Demographic Profile. The demographic data of the sample are shown in Table 7 below. The ratio of male to female is approximately 1 : 3, with 191 males (25.6%) and 554 females (74.4%). It reflects that the education of Chinese parents to their children is mainly undertaken by their mothers. The educational level of parents of middle school students mainly concentrated in junior high school (49.5%) and junior college/undergraduate (32.6%), and the age group mainly concentrated in 36–40 years old (31.9%) and 41–45 years old (34.2%). More than half of the parents' monthly income level was less than 5000 yuan. Considering the proportion of sample size and items, the sample size of this study is sufficient [35]. Data show that economic income cannot directly reflect the impact of willingness to deal with fees.

5.2. Measurement Model. The confirmatory factor analysis (CFA) of the measurement model is carried out with

TABLE 7: Demographic data.

Population profile	Category	Frequency	Frequency	Cumulative percentage (%)
Gender	Male	191	25.6	25.6
	Female	554	74.4	100.0
Education degree	Master or above	14	1.9	1.9
	Junior college/undergraduate	243	32.6	34.5
	High school	119	16.0	50.5
	Junior high school	369	49.5	100.0
Age bracket	30–35	52	7.0	7.0
	36–40	238	31.9	38.9
	41–45	255	34.2	73.2
	46–50	135	18.1	91.3
	Other	65	8.7	100.0
Monthly income level	Over 8000	63	8.5	8.5
	6500–8000	41	5.5	14.0
	5000–6500	88	11.8	25.8
	3500–5000	208	27.9	53.7
	2000–3500	345	46.3	100.0

TABLE 8: Results of confirmatory factor analysis.

Dimension	Subject	Parameter significance estimation				Factor load	Subject reliability	Composite reliability	Convergent validity
		Unstd.	S.E.	<i>t</i> value	<i>p</i>	Std.	SMC	CR	AVE
CI	CI1	1.000		NA		0.835	0.697	0.926	0.807
	CI2	1.077	0.033	33.108	***	0.935	0.874		
	CI3	1.053	0.032	32.673	***	0.922	0.850		
PU	PU1	1.000		NA		0.785	0.616	0.921	0.797
	PU2	1.208	0.041	29.742	***	0.943	0.889		
	PU3	1.210	0.041	29.718	***	0.942	0.887		
PV	PV1	1.000		NA		0.745	0.555	0.890	0.670
	PV2	1.061	0.051	20.866	***	0.771	0.594		
	PV3	1.193	0.050	23.725	***	0.877	0.769		
	PV4	1.170	0.050	23.602	***	0.872	0.760		
PR	PR1	1.000		NA		0.767	0.588	0.868	0.689
	PR2	1.217	0.053	23.091	***	0.925	0.856		
	PR3	1.028	0.047	22.076	***	0.789	0.623		
PC	PC1	1.000		NA		0.838	0.702	0.782	0.548
	PC2	0.819	0.053	15.315	***	0.734	0.539		
	PC3	0.728	0.050	14.512	***	0.635	0.403		
SI	SI1	1.000		NA		0.851	0.724	0.824	0.611
	SI2	0.876	0.046	18.961	***	0.768	0.590		
	SI3	0.830	0.045	18.347	***	0.721	0.520		
WTP	WTP1	1.000		NA		0.777	0.604	0.909	0.715
	WTP2	1.065	0.045	23.906	***	0.816	0.666		
	WTP3	1.175	0.045	25.938	***	0.873	0.762		
	WTP4	1.177	0.043	27.069	***	0.910	0.828		
OC	OC1	1.000		NA		0.663	0.440	0.803	0.507
	OC2	1.185	0.072	16.395	***	0.783	0.613		
	OC3	1.159	0.071	16.372	***	0.780	0.608		
	OC4	0.862	0.063	13.745	***	0.607	0.368		

Note 1. CI = course information; PV = perceived value; PU = perceived usefulness; PR = perceived risk; PC = perceived cost; WTP = willingness to pay; SI = social influence; OC = online comments. Unstd. = unstandardized factor loading; S.E. = standard error; *t* value = critical ratios; NA = not available (regression coefficient is fixed to 1.0); Std. = standardized factor loading; SMC = squared multiple correlations; CR = composite reliability; AVE = average variance extracted. Note 2. *** $p < 0.001$; $N = 745$.

TABLE 9: Validity evaluation of discriminant validity.

	AVE	CI	PV	PU	PR	PC	WTP	SI
CI	0.807	0.898						
PV	0.670	0.66	0.819					
PU	0.797	0.548	0.74	0.893				
PR	0.689	0.131	0.022	0.144	0.830			
PC	0.548	0.158	0.016	0.112	0.658	0.740		
WTP	0.715	0.57	0.691	0.913	0.21	0.208	0.846	
SI	0.611	0.641	0.784	0.807	0.201	0.223	0.865	0.782

Notes. CI = course information; PV = perceived value; PU = perceived usefulness; PR = perceived risk; PC = perceived cost; WTP = willingness to pay; SI = social influence; Diagonals represent the square of AVE; Off-diagonal elements are the correlation.

TABLE 10: Modified model fitting index.

Inspection quantity	Absolute fitness index				Value-added fitness index					Parsimony fitness index	
	χ^2/df	GFI	AGFI	RMSEA	NFI	RFI	IFI	TLI	CFI	PGFI	PNFI
Good standard	<3	>0.9	>0.9	<0.08	>0.9	>0.9	>0.9	>0.9	>0.9	>0.5	>0.5
Model	1.56	0.97	0.95	0.03	0.97	0.97	0.99	0.99	0.99	0.592	0.707

Note. Goodness of fit of the model in 2000 bootstrap.

TABLE 11: Hypothesis test.

Hypothesis	Standardized path coefficient	Nonstandard path coefficient	S.E.	<i>t</i> value	<i>p</i>	Result
Hypothesis 1: CI $\rightarrow$ PU	0.547	0.477	0.033	14.576	***	True
Hypothesis 2: CI $\rightarrow$ PV	0.359	0.305	0.028	10.724	***	True
Hypothesis 3: PU $\rightarrow$ PV	0.574	0.559	0.038	14.655	***	True
Hypothesis 4: PR $\rightarrow$ PV	-0.060	-0.054	0.023	-2.303	0.021	True
Hypothesis 5: PC $\rightarrow$ PV	-0.055	-0.066	0.033	-2.000	0.046	True
Hypothesis 6: PV $\rightarrow$ WTP	0.393	0.341	0.029	11.664	***	True
Hypothesis 7: SI $\rightarrow$ WTP	0.719	0.631	0.040	15.969	***	True

Note. CI = course information; PV = perceived value; PU = perceived usefulness; PR = perceived risk; PC = perceived cost; WTP = willingness to pay; SI = social influence; Significant at ***: $p < 0.001$.

AMOS24 to test the relationship between the assumed observation variables and the assumed potential variables. In this study, CFA analysis was conducted on all dimensions -course information, perceived usefulness, perceived value, perceived risk, perceived cost, social influence, online comments, and willingness to pay. The standardized factor load of the eight dimensions was more than 0.6 and significant, and the item reliability was greater than 0.36. The compositional reliability of the eight dimensions is above 0.7, indicating good internal consistency; convergence validity (mean variance extraction) was greater than 0.5, indicating that the convergence effect is good, as shown in Table 8. The results meet the criteria of Fornell and Larcker [36] and Hair et al. [37] that the factor load is greater than 0.5, the component reliability is greater than 0.6, and the convergence validity is greater than 0.5. The discriminant validity is verified by comparing the correlation between the open root value of AVE and other dimensions. In this study, the discriminant validity of seven dimensions of independent variable and dependent variable is analyzed, and the results are shown in Table 9. The diagonal element in the matrix is the value of AVE root opening. Except that the value of AVE root sign perceived usefulness is slightly lower

than the correlation coefficient between the user and the willingness to pay, and the free root number value of payment willingness is slightly lower than the correlation coefficient between it and social influence (the difference between the values is small), the value of AVE root opening in all dimensions is higher than the correlation between them and the relevant dimensions. Since the AVE method is a strict method to determine the difference validity, the result of the difference validity is acceptable in general.

5.3. Structural Model. The absolute fitness index, value-added fitness index, and parsimony fitness index are used to measure the model. The measurement of absolute fitness index includes χ^2/df , GFI, AGFI, and RMSEA. The value-added fitness index includes NFI, RFI, IFI, TLI, and CFI. The measurement of parsimony fitness index includes PGFI and PNFI. In SEM analysis, it is basically impossible for the data to conform to the multivariate normal distribution [38], but nonmultivariate normality is easy to cause the expansion of chi square. Therefore, this paper uses Bollen Stine bootstrap procedure to adjust the model fitting and parameter estimation to adapt to the lack of multivariate normality

FIGURE 2: Hypothesis test results. Notes: * $p < 0.05$; *** $p < 0.001$.

TABLE 12: Moderating effect of online reviews.

Path	Estimate	S.E.	C.R.	p
PV $\rightarrow$ WTP	-0.044	0.054	-0.811	0.417
OC $\rightarrow$ WTP	0.794	0.061	12.926	***
PXO $\rightarrow$ WTP	0.028	0.006	4.992	***

[39, 40]. The revised results are shown in Table 10. The absolute fitness index, value-added fitness index, and parsimony fitness index are basically excellent.

As shown in Table 11 and Figure 2, the course information has a significant positive effect on perceived usefulness (CI $\rightarrow$ PU: $\beta = 0.547$, $t = 14.576$, $p < 0.001$); hypothesis 1 is true. The course information positively affected the perceived value (CI $\rightarrow$ PV: $\beta = 0.359$, $t = 10.724$, $p < 0.001$), and hypothesis 2 was established. The perceived usefulness positively affected perceived value (PU $\rightarrow$ PV: $\beta = 0.574$, $t = 14.655$, $p < 0.001$), and hypothesis 3 was established. Hypotheses 1–3 show that perceived usefulness and course information as perceived benefits positively affect perceived value. The perceived risk significantly negatively affected perceived value (PR $\rightarrow$ PV: $\beta = -0.060$, $t = -2.303$, $p = 0.021 < 0.05$); hypothesis 4 was established. The perceived cost significantly negatively affected perceived value (PC $\rightarrow$ PV: $\beta = -0.055$, $t = -2.000$, $p = 0.046 < 0.05$); hypothesis 5 was established. Hypotheses 4–5 show that perceived risk and perceived cost have negative impact on perceived value as perceived losses. Perceived value positively affected willingness to pay (PV $\rightarrow$ WTP: $\beta = 0.393$,

$t = 11.664$, $p < 0.001$); hypothesis 6 was established. Social influence had a positive effect on willingness to pay (SI $\rightarrow$ WTP: $\beta = 0.719$, $t = 15.969$, $p < 0.001$). The results of structural equation model analysis show that perceived usefulness explains 30% variance, perceived value explains 69% variance, willingness to pay explains 67% variance, and the interpretation degree reaches the acceptable level of medium or above.

5.4. Adjustment Test. In general, it is difficult to use potential variables when analyzing interaction by structural equation. Firstly, nonlinear constraints must be applied to fixed factor coefficients and error variance to identify the effects of interaction. Secondly, it is difficult to confirm that the indicators of interaction items have normal distribution even if each variable that constitutes the interaction item has it. In order to solve the above problems and explore the moderating effect between perceived value and willingness to pay by online comments, this paper adopts two-step approach proposed by Ping [41] through amos24, which does not require nonlinear constraints. As shown in Table 12 and

FIGURE 3: Moderating model of online reviews.

FIGURE 4: Final test results. Notes: * $p < 0.05$; *** $p < 0.001$.

Figure 3, the interaction item PXO of perceived value and online comments has a positive and significant impact on the willingness to pay. Assuming that 8 is established, it is clear that online comments positively regulate the relationship between perceived value and willingness to pay.

The final test results of empirical research are shown in Figure 4.

6. Conclusion

This paper judges the influence of users' perceived value and external situational factors on their willingness to pay. The proposed model comprehensively analyzes the willingness of middle school students' parents to pay for online learning platform from the personal subjective feelings (perceived value)

and external situational factors (social influence and online comments of the pay group). At the same time, all the assumptions in this paper are verified. Course information directly affects perceived value and indirectly affects perceived value through perceived usefulness. Perceived risk and perceived cost negatively affect perceived value. Perceived value and social influence positively affect willingness to pay, and online comment positively moderates the relationship between perceived value and willingness to pay. Among the four dimensions that affect perceived value, perceived usefulness and course information positively affect perceived value, and the degree of positive influence of perceived usefulness is greater than that of course information. Perceived cost and perceived risk negatively affect perceived value, and perceived risk negatively affects more than perceived cost. Thus, the willingness to pay for online learning platforms is mainly determined by users' perceived value and external situational factors.

This study has made three important contributions to the theoretical development of willingness to pay. First of all, this paper combines the theory of perceived value and external situational factors to expand the model that explains the willingness to pay of middle school students' parents in online learning platforms, which is rarely discussed in the existing literature. Second, the results show that, compared with the parents' subjective feelings of online learning platform, external situational factors (social influence) have a stronger impact on the willingness to pay of middle school students' parents. Third, empirical analysis shows that online comments positively moderate the relationship between perceived value and willingness to pay, which fills the knowledge gap of the moderating effect of online comments on willingness to pay in previous studies.

Data Availability

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Additional Points

Limitations and Future Research. Limitations of research: previous studies have considered users and customers as a role. The online learning of middle school students has a special situation that users use and customers pay. Therefore, this study only considers the subjective and social factors of customers (parents) willingness to pay and does not consider the impact of use on their willingness to pay. This is not only an innovative attempt, but also may have limitations. Future research: since middle school students' online learning has the situation of customer-user separation, the future research should be based on this study to identify the impact of user use factors on customer willingness to pay, in order to study the mechanism of middle school students' online learning willingness to pay in the context of customer-user separation.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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