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Study on the Attractiveness Factors of Online Courses

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Abstract: With the rapid development of online courses, digital learning has become a global trend. In this context, this study analyzed the high intake population of online courses for online affective cognition, and explored what the user's attraction factors for online courses are. The key factors that affect consumers' usage of online courses and the weights of impact relations are presented, aiming to provide guidance for future improvement of online courses. This study was conducted through the evaluation grid method of Miryoku engineering. In order to make the charm factors more accurate and representative, this study summarized the charm elements using the Kawakita Jiro (KJ) method, and then quantified the factors in the form of a questionnaire. Through the statistical analysis of the questionnaire and quantification theory type I, the correlation between the charm feeling and the online course as well as the weight of each item (original evaluation item) and category (specific evaluation item) were calculated. Through the research and discussion on the charm factors of online teaching, the results analyzed and integrated in this paper could give more substantive suggestions and help to the education industry.

Keywords: online course; Miryoku engineering; evaluation grid method; quantification theory type I

1. Introduction

As early as the birth of the Internet, online education came into being at a historic moment. Under the current trend of mobile interconnection, online education presents a new trend of development. By using the Internet and mobile Internet application technology, online learning and mobile learning services are provided to the public. Breaking the inherent limitation of the traditional education model is an important measure to promote the development of education informatization and lifelong education. Since course websites are increasingly important in the instructional process, assessing their effectiveness and quality is critical for both educators and researchers [1].

The attractiveness of the product represents a key factor in impacting consumers' choices and decisions [2]. Jing-Song Huang and others mentioned that attractiveness could gain consumers' attention, and the charm of the product comes not only from the function of the product itself but also from other external services. Consumer preferences are influenced by product appeal, and the discussion of attractiveness elements has an important influence, so discussing the charm of online course elements is helpful for online development in the future [3].

This study focuses on the application of glamour engineering theory and the evaluation construction method, which can quickly and easily extract users' glamour elements for products, services, and environmental models.

2. Literature Review

2.1. Trends in Online Courses

Current trends in the field of distance education indicate a shift in pedagogical perspectives and theoretical frameworks, with student interaction at the heart of learner-centered constructivist environments [4]. Therefore, we have to understand consumers' emotions and preferences of online courses to design attractive online courses to meet consumers' expectations.

2.2. Methodology of Research

2.2.1. Miryoku (Attractiveness) Engineering

'Miryoku engineering' was initiated in 1991 by a group of scholars led by Masato Ujigawa. It is aimed at creating attractive products, spaces, and services [5]. Miryoku engineering focuses on the consumer's inner subtle feelings [3]. Attractiveness can arouse consumers' potential sensory pleasures and satisfy their desire for dreams [6]. The influence can be found by Miryoku engineering. It can be extended to explore the sustainability of the charm. The main system of Miryoku engineering is composed of three areas; basic theories, modeling (techniques for research and analysis), and design. In a part of the system, there is the 'evaluation grid method', modified from the repertory grid method or repertory grid technique [5,7].

2.2.2. Evaluation Grid Method

The evaluation grid method (EGM) is an important research method in Miryoku engineering. The evaluation grid method research was often used as a design aid in architecture as well as the industrial field. Ujigawa and several scholars initiated Miryoku engineering and proposed the evaluation grid method. The primary purpose of the evaluation grid method is to thoroughly explore users' inner feelings to extract details of consumers' cognitive structures and to convert them into real factors of assessment as a basis of design [8]. The evaluation grid method can obtain customers' product preferences and emotions relating to products through in-depth structural interviews, which are conducted hierarchically. First, the interviewee is invited to assess the merits and attraction of the product by recognizing similarities and differences to other products and replying to additional questions from the interviewer. The interviewer categorizes the answers and opinions for further compiling of a hierarchic structure of the interviewee's descriptive attractiveness factors [5].

2.2.3. Kawakita Jiro (KJ) Method

Kawakita Jiro was developed in 1960. The KJ method is used to collect people's different opinions, ideas, and experiences, and to use all the relationships between them to sort them out. It is useful for breaking through a predicament and finding a solution to the problem [9]. Its main feature is to seek innovation from synthesis based on comparative classification. When synthesizing cards, they can be discussed individually or collectively [10]. The basic steps are: (1) Card-making; (2) classification and naming; (3) sub-classification, chart-making, and explanation. The KJ method is simple and easy to implement, which enables the team to concentrate on the work at hand. It is also good at eliminating unnecessary discussions and reducing the probability of divergent targets.

2.2.4. Quantification Theory Type I (QTT1)

Quantification theory type I is a simple proof procedure for quickly proving the quantitative theory. QTT1 can be regarded as a form of quantitative and categorical multiple regression analysis methods, which allows the inclusion of independent variables that are categorical and qualitative [11,12]. This study applies the analysis method of quantitative theory type I to calculate the critical attractiveness factors of the online course.

3. Research Process and Steps

The research process is shown in Figure 1.

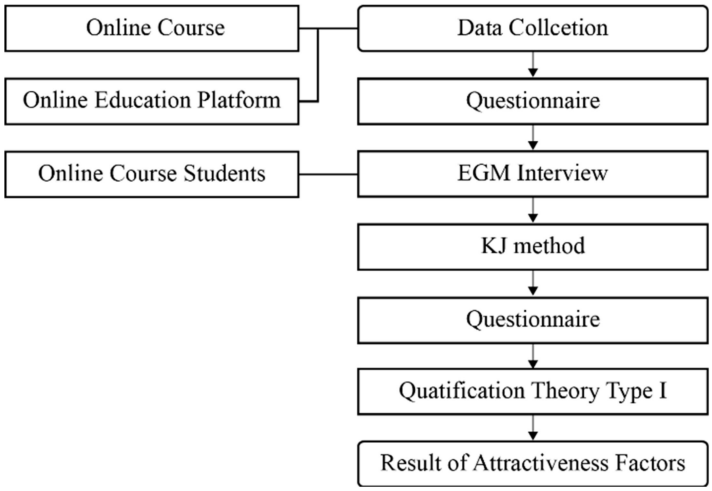

Figure 1. Research flowchart.

The following four steps are mainly divided into: (1) "Online course control search plan", the final screening of 16 online course store high-frequency crowd as an interview object by way of a questionnaire survey; (2) on-site interviews: This study interviewed 16 online course high-use community participants through EGM to determine the attractiveness of the three phases, designated "ladder up abstract feelings", "middle original reasons", and "ladder down concrete objects"; (3) KJ method: Using the KJ method to summarize and organize the interview content; (4) quantitative type I: Finally, the results of the questionnaire were analyzed by quantitative type I to find out the relationship between the abstract feelings and the attractive factors of the online course, affecting the weight and category number of each item. This study explored the charm of the online course store with two questionnaires.

3.1. EGM Interview Analysis Results

In this study, the data of 235 qualitative interviews were obtained through 16 EGM interviews with highly involved groups in online courses. Each qualitative interview material consisted of the specific details of the original evaluation items, which are the charm characteristics of online courses, the abstract feelings which correspond to the charm characteristics, and the specific conditions for achieving the original evaluation items which produce the charm characteristics. In the course of the interview, respondents were required to give their opinions about the characteristics of the online course store, the "ladder up" of the original evaluation item, and the "ladder down". After the collection of the original data, the KJ method was used to sort out, summarize, and group the extracted charming elements. Finally, the feeling elements of 9 online courses, 87 charm characteristics and 163 specific conditions for forming charm characteristics were summarized. From the qualitative interview data, the three dimensions of online courses, which are the product of online courses, the service and evaluation system of online courses, and the environment and mode of online courses, are presented.

The KJ method was used to sort out the interview results of EGM. The final evaluation structure chart shows that there are three main factors influencing the charm of online courses for consumers and nine charm feelings, as shown in Table 1.

From the perspective of online course products, preferential prices make students feel satisfied, pleasure. High learning efficiency makes students feel professional and relaxed, and convenient learning approach makes students feel the course is convenience, intimated, and pleasure; additionally, a good learning effect makes students feel professional, satisfied and accomplished. From the point of view of online course service and evaluation systems, thoughtful after-school service makes students feel intimate and

pleasure; a sound course evaluation system makes students feel the course is convenience. An interactive and diversified curriculum environment makes students feel pleasure and interested; the application of new technology in the curriculum model makes students feel interested and professional.Customized curriculum model makes students feel the course is intimated and convenience.

Table 1. Evaluation grid method (EGM) evaluation of structural tables.

Feelings	Three Main Factors	Specific Charm
Sense of Security Sense of Convenience Sense of Relax Sense of Intimate Sense of Profession Sense of Interest Sense of Accomplishment Sense of Satisfaction Sense of Pleasure	Online Course Products	Price advantage Efficiency advantage Convenience advantage Effect superiority
Sense of Intimate Sense of Convenience Sense of Pleasure	Online Course Service and Evaluation System	After class service is thoughtful Perfect curriculum evaluation system
Sense of Pleasure Sense of Profession Sense of Interest Sense of Intimate Sense of Convenience	Online Course Environment and Model	Interaction Diversification Scientific and technological Customization

3.2. Implementation Results of Quantitative Type I

Through the evaluation of the structure chart, two questionnaires were made, and the data were analyzed by QTT1 with the results of the two questionnaires. The weights of factors were calculated as shown in Table 2 (Sense of intimate, for example).

Table 2. Quantitative type I diagram.

Sense of Intimate		
Valid samples: 100		
Dependent variable: Y		
Independent variable:	Item	Categories
X1-Timely interactive online courses	8	
X2-Timely course feedback	4	
X3-Thoughtful course service	3	
X4-Choose their own way of learning	3	
X5-Customized course	3	
X6-Good after-school service	2	

Table 2. *Cont.*

Sense of Intimate							
***** Correlation corfficient ranks *****							
	Y	X1	X2	X3	X4	X5	X6
Y	1	0.105	0.235	0.089	0.247	0.229	0.237
X1-Timely interactive online courses	0.105	1	−0.037	0.078	−0.363	0.01	−0.248
X2-Timely course feedback	0.235	−0.037	1	−0.124	−0.274	0.106	0.052
X3-Thoughtful course service	0.089	0.078	−0.124	1	0.06	−0.015	−0.252
X4-Choose their own way of learning	0.247	−0.363	−0.274	0.06	1	−0.122	0.053
X5-Customized course	0.229	0.01	0.106	−0.015	−0.122	1	−0.176
X6-Good after-school service	0.237	−0.248	0.052	−0.252	0.053	−0.176	1
***** Standardized score *****							
Item	Categories	Score	Correlation				
X1-Timely interactive online courses	1	0.885	0.401				
	2	0.058					
	3	−2.149					
	4	−2.184					
	5	2.455					
	6	2.109					
	7	−3.525					
	8	2.161					
X2-Timely course feedback	1	0.947	0.399				
	2	−3.302					
	3	1.328					
	4	0.863					
X3-Thoughtful course service	1	−5.00	0.559				
	2	−1.1595					
	3	4.857					
X4-Choose their own way of learning	1	0.514	0.218				
	2	−1.236					
	3	1.124					
X5-Customized course	1	0.864	0.376				
	2	−0.726					
	3	−6.86					
X6-Good after-school service	1	0.6526	0.425				
	2	−5.961					
Constant term		24.944					
R = 0.737020632594659							
Coefficient of determination (R^2) = 0.543199412870232							

Two questionnaires were made for the nine abstract feelings, and the results were analyzed quantitatively. Seven of them had strong correlation with online courses, and the results are shown in Table 3 (R-Value number. 0.00~0.19 the predictive value was low correlated, a 0.20~0.39 predictive value had a correlation, a 0.40~0.69 predictive value had strong correlation, and a 0.70~1.00 forecast value has very strong correlation). A total of 119 samples were collected, of which 100 were valid.

Table 3. Analysis diagram of quantitative type I of online course.

Feeling	Item	Category	Category Score	Factor Score
Sense of convenience R = 0.65	X1-Convenient Learning Style	Anytime, anywhere, infinite replay	2.455	0.401
Sense of relax R = 0.68	X4-Simple Course Retrieval	You can see the magnitude score, the number of registered students and the comments to help you choose a good course.	0.257	0.568
Sense of intimate R = 0.74	X3-thoughtful course service	Timely homework feedback	4.857	0.559
Sense of pleasure R = 0.40	X5-Multivariate Classroom Environment	Students of different majors can attend classes together.	1.737	0.319
Sense of security R = 0.62	X2-Powerful User Adhesion	Once registered, it has the ability to read for life.	3.055	0.491
Sense of interest R = 0.41	X1-Introduction of Emerging Science and Technology into Teaching	AR / VR classroom	0.709	0.338
Sense of profession R = 0.41	X3-Strong force of teachers	Famous teacher screening mechanism	0.414	0.307

As is shown in Table 3 above, the charm and intimacy of online courses had a "very strong" correlation (R = 0.74). Considerable course services can create intimate feelings for students of online courses. Students of online courses believe that timely homework feedback is an important factor in creating intimate services. Relaxation, convenience, ease of mind, interest, professionalism, and pleasure are closely related to the charm of online courses. Simple course retrieval can create a sense of relaxation. Scoring, enrollment, and comment evaluation are important factors to create a relaxed course. Convenient learning methods can create a sense of convenience, and courses can be learnt at anytime, anywhere. Infinite replay is an important factor to create convenient learning. Strong user stickiness can create a sense of reassurance for students of online courses. Once registered, the ability to read for life is an important factor in creating a sense of reassurance.

4. Conclusions

The results of this study showed that the charm factors of online courses for students could be found through the research method of charm engineering. The seven abstract feelings were all related to the charm of online courses. Through quantification theory type I analysis, this study found the top seven attractiveness factors for each respective phase. The reasons are as follows: (1) Convenient learning style; (2) simple course retrieval; (3) thoughtful course service; (4) multivariate classroom

environment; (5) powerful user adhesion; (6) introduction of emerging science and technology into teaching; and (7) strong force of teachers. At the same time, the influence weight of detail charm factor was calculated through quantitative analysis, which provides specific direction for the development of online courses in the future. In the future, this can also help marketing planners, designers, managers, engineers, academics, and others to understand the users' experience and discover the emotional value and charm of things.

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