



An Empirical Analysis of the Quality of Online Courses in China

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ABSTRACT: Using data collected through the use of a structured closed-ended questionnaire with 200 usable responses, this research analyzes the current state of online course quality in China as well as its associated existing problems and dilemmas. It utilizes a Triangulation Methodology in terms of research design, the method of data collection, and the method of data analysis. The study found that the main problems with online courses in China relate to poor learning atmosphere, lack of contextuality, and the teaching level of instructors which ranges from good to bad. Moreover, course objectives and training plan, course content design, and faculty and teaching process all have a relationship with user attitude of online course advantages. Regarding user satisfaction of online courses, our research finds that it has a relationship with the goals of the curriculum, training programs which are consistent with the times and needs of social development, the richness of MOOC resources, integrated and scientific course content design, as well as the level of course delivery provided by teachers.

KEYWORDS: Online course quality, Triangulation methodology, China

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I. INTRODUCTION

The era of mobile Internet, development of technology, and the rise of "Internet +" have all contributed to the rapid development of online courses we have witnessed in the last several years. The use of new technologies such as big data, artificial intelligence and so on have brought about significant opportunities to adapt to the trend of technological development. This, in turn, has accelerated the development of online learning, its quality management and related improvements around the globe. China is one of the countries that has fully embraced online learning and is actively encouraging its rapid adoption. This paper is concerned with an analysis of the quality of online courses in China during the last several years, the problems and dilemmas it faces, and a suggestion of the best way forward.

On October 30, 2019, the Chinese Ministry of Education issued the "Implementation Opinions on the Construction of First-Class Undergraduate Courses." The Ministry pointed out that curriculum is the core element of talent cultivation, and that the quality of curriculum directly determines the quality of talent cultivation.

The COVID-19, which was first discovered in China in 2019, was officially declared a "pandemic" by the World Health Organization (WHO) on March 11, 2020 (UNDP, 2020). The demand for online education, online office, and online pan-entertainment activities for users broke the record during the epidemic. Covid-19 pandemic has forced a lot of people to use online courses in China and elsewhere around the globe. Under these circumstances, we believe it is appropriate to carry out an analysis of the quality of online courses in China and measure user satisfaction and attitude in this environment. It is with these issues that the research reported in this paper is concerned.

Online learning is said to meet diverse educational needs and truly breaks the limits of time and space. Li (2019) argues that online learning is conducive to promoting the development of education in regions with insufficient educational resources and meeting people's needs for high-quality education resources. The combination of online learning and the Internet has spawned massive Open Online Courses (MOOC). With the

rapid development of online courses, a number of problems have emerged that require urgent attention and change.

1.1 Research objectives

The primary objective of this research is, using survey data, to analyze the current quality of online course offerings in China, the associated services provided, and the nature of the existing problems and difficulties online learning faces in this environment. Our research has one complementary objective which is to investigate and produce knowledge about the expectations and perceived quality management of online course services in China and suggestions about their improvement.

The particularity of our research lies in its novelty because it investigates the key factors that affect the quality of online courses in this environment. Moreover, our research utilizes SmartPLS 3 software to analyze the empirical data. Our findings contribute to a better understanding of the importance of the quality of online courses in China and its overall implications on online education in this environment. The findings also have important managerial implications in the sense that they constitute the basis for helping organizations develop better online course strategies.

1.2 Research questions

Based on the above-outlined research objectives the specific questions of our research are as follows:

Q1: What are the key factors in the expectations and perceived quality of online courses in China?

Q2: What are the key factors in the expectations and perceived quality of management of online courses in China?

Based on these research questions we have developed a number of hypotheses to guide our research.

Firstly, we wanted to test whether **Expectation** (Q12) has influence on **Satisfaction** (Q13). The hypotheses to this issue have been outlined as follows:

Hp 1a: Course objectives and training plan affect user **satisfaction** of online courses.

Hp 2a: Course content design affects user **satisfaction** of online courses.

Hp 3a: Course effect and feedback affect user **satisfaction** of online courses.

Hp 4a: Faculty and teaching process affect user **satisfaction** of online courses.

Secondly, we wanted to test whether **Expectation** (Q12) has influence on **Attitude** (Q7). The hypotheses to this issue have been outlined as follows:

Hp 1b: Course objectives and training plan affect user **attitude** of online courses.

Hp 2b: Course content design affects user **attitude** of online courses.

Hp 3b: Course effect and feedback affect user **attitude** of online courses.

Hp 4b: Faculty and teaching process affect user **attitude** of online courses.

Thirdly, we carry out a more complete analysis to determine whether each of the 15 expectation items on Likert scale (see Exhibit 1) have a relationship with satisfaction. To do this we re-name the 15 items (A1-D6) and developed the following hypotheses to guide our work:

Hp 1a: A1 affects user satisfaction of online courses.

Hp 2a: A2 affects user satisfaction of online courses.

Hp 3a: B1 affects user satisfaction of online courses.

Hp 4a: B2 affects user satisfaction of online courses.

Hp 5a: B3 affects user satisfaction of online courses.

Hp 6a: B4 affects user satisfaction of online courses.

Hp 7a: B5 affects user satisfaction of online courses.

Hp 8a: C1 affects user satisfaction of online courses.

Hp 9a: C2 affects user satisfaction of online courses.

Hp 10a: D1 affects user satisfaction of online courses.

Hp 11a: D2 affects user satisfaction of online courses.

Hp 12a: D3 affects user satisfaction of online courses.

Hp 13a: D4 affects user satisfaction of online courses.

Hp 14a: D5 affects user satisfaction of online courses.

Hp 15a: D6 affects user satisfaction of online courses.

Similarly, we tested the relationship between these 15 items and attitude of online courses(Hp1b-Hp15b).

A number of research undertakings in concerned with online learning in China have addressed the issue of the construction of online courses for regular students as well as adult learners in higher education in the country (Feng & Chen, 2020; Xu, 2019). However, there are, to the best of our knowledge, not many studies that have focused specifically on issues of quality for online courses. Based on the analysis of the current situation and the challenges related to developing quality online courses, our research proposes a conceptual model for analyzing the quality of online courses and discusses strategies to promote online learning. It further contributes to bringing together, in a coherent manner, some of the efforts that have been made towards promoting the construction of online courses and the evaluation of these based on rigorous scientific methods.

II. LITERATURE REVIEW

2.1 Service quality

Online courses are a service provided by organizations (i.e. higher education institutions and other organizations) to consumers (students). It is therefore pertinent that the literature concerned with services be taken into particular consideration in this review. In the past few decades many analytical methods and descriptive models have been developed from debates surrounding service quality. One example of such models is the Gap Model which was developed together with the SERVQUAL scale by Parasuraman, Zeithaml and Berry (1985). The Gap Model is still probably one of the most used conceptual models in service marketing (Mauri et al., 2013). The model was first introduced in 1985 then later refined and further enhanced by the same authors (Parasuraman et al., 1988; Parasuraman et al., 1990, 1991a, 1991b, 1993; Parasuraman et al., 1994a, 1994b). In their 1988 work (Parasuraman et al., 1988), the authors define "perceived [service] quality" as the consumer's judgment about an organization's overall excellence or superiority (Bitner, 1990). SERVQUAL is a popular instrument for measuring service quality (Brown & Bond, 1995). According to Brown and Bond, in addition the Gap mode affirms the value of Internal Market/External Market (IM/EM) (Lusch et al., 1992) model in the services literature.

The GAP service quality model shows that consumers' perception of quality is affected by four distinct differences (i.e. gaps) in the organization. There exist five GAPS in consumers' perceived service quality. This, in essence, demonstrates the difference between consumer expectations and perceptions.

According to Zeithaml et al (1988), perceived service quality is determined by 4 gaps. These gaps are as follows:

“Gap 1: The difference between consumers' expectations and management perceptions of consumer expectations.

Gap 2: The difference between management perceptions of consumer expectations and service quality specifications.

Gap 3: The difference between service quality specifications and the service actually delivered.

Gap 4: The difference between service delivery and what is communicated about the service to consumers.”

Research for this paper was inspired by the GAP service quality Model. We focus particularly on expectations and perceived quality of online courses. In our analysis issues of desired service, adequate service, and predicted service are all very important. Our research attempts to explore the issue of whether consumer expectation may have an influence on their satisfaction when it comes to online courses.

2.2 Quality in e-learning

Presently there are four main global platforms for e-Learning and these are as follows:

- Coursera
- Harvard University and MIT Online Course Platform (edX),
- Online University (Udacity).
- Blackboard Learn (formerly Coursework by Blackboard)

Many institutions have established online course evaluation standards and certification index systems. The OpenupEd Quality Label is the first quality label for Massive Open Online Courses (MOOCs) in the world. It was established by the EADTU: European Association of Distance Teaching Universities (OpenupEd, 2020). Evaluation benchmarks include Institutional Level and Course Level which are the two first-level indicators. The Institutional level includes six second-level indicators, namely: Strategic Management, Curriculum Design, Course design, Course delivery, Staff support and Student support. The course level includes eleven three-level indicators. (Rosewell & Jansen, 2014) However, this benchmark ignores the evaluation of the teaching process and has certain limitations.

The Quality Matters (QM) Program is a way to certify the quality of online courses which was designed by MarylandOnline in 2003 (QUALITY MATTERS, 2020). It provides a standard for measuring the quality of online courses and contributes to improving the quality of online education.

Yousef et al (2014) have proposed a number of criteria which can be used to ensure the design quality of MOOCs which includes pedagogical and technological dimensions and 74 indicators. There are 6 categories which include: Instructional Design, Assessment, User Interface, Video Content, Social Tools and Learning Analytics. As Yousef et al (2014) have correctly observed, learning analytics and assessment are imperative for effective MOOCs.

Wang et al. (2018) suggest that there are some unique challenges of e-learning in China and these include the following:

- Barriers from traditional culture,
- Uneven level of information literacy,
- Lack of favorable e-learning environments, and
- Inadequate guaranteed mechanism for resources construction and application.

III. METHODOLOGY

3.1 Triangulation methodology

A mixed methodology combining qualitative and quantitative research methods (generally referred to in the literature as methodological Triangulation) is employed in the present research. The Triangulation methodology was utilized at the levels of the research design, the method of data collection, and the method of data analysis.

Out of 240 questionnaires sent out in our survey we received a total of 200 usable responses which represents 83.3% of the response rate. This is an acceptable response rate and consistent with empirical studies of this nature. The target group in our survey were respondents with higher education who were more likely to be familiar with (or were interested in) online courses. We wanted to measure their expectations with regard to the quality standards of online courses.

3.2 Data collection instrument

The specific items included in the data collection instrument (questionnaire) were as outlined in Exhibit 1 below. The 15 items were, in turn, based on the conceptual model (Figure 1) which we developed following a review of the literature and personalized interviews with a selected number of respondents in the survey. As can be discerned in Figure 1 the conceptual model comprised four major parts, namely: Course objectives and training plan, Course content design, Course effect and feedback, Faculty and teaching process.

Exhibit 1: Expectations Likert Scale Items (15 Analytical Items)

Item
Course objectives and training plan
A1 Curriculum goals and training programs meet the needs of the times and social development
A2 Curriculum goals and training programs meet the needs of students
Course content design
B1 Reasonable setting of MOOC video duration
B2 Rich MOOC course resources
B3 MOOC course content design is integrated
B4 MOOC course content design is scientific
B5 The MOOC course content is distinctive and interesting
Course effect and feedback
C1 Satisfaction evaluation and course evaluation can be carried out
C2 There are homework and tests
Faculty and teaching process
D1 Strong faculty
D2 The teacher's teaching level is superb
D3 Excellent academic level of teachers
D4 Teachers and students have a good interaction

D5 MOOC image quality is clear, and course technical support is guaranteed

D6 There is a screen recording of the live course, and the video can be watched repeatedly

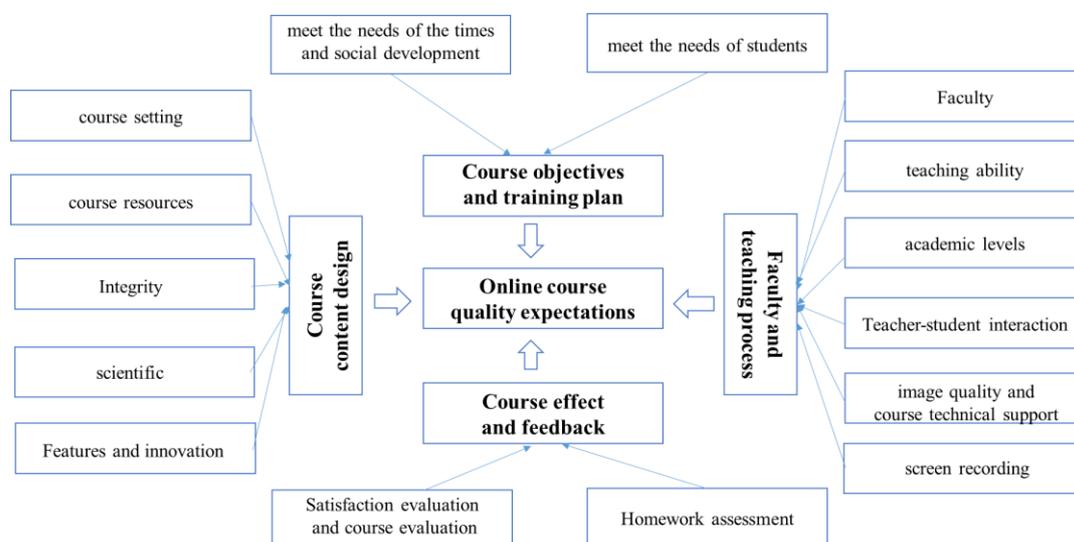


Figure 1: A conceptual model of online course quality expectations

IV. ANALYSIS OF ONLINE COURSES

4.1 Qualitative analysis

In the past decade or so, online learning has shown significant growth. There are currently many online learning platforms on the market, such as Udemy, Coursera, Lynda, Skillshare, Udacity (Koksal, 2020). And there is a huge demand for online learning on a global basis.

Online learning has unparalleled advantages and companies operating in the industry have a large amount of user data that can use technology to personalize learning content, optimize learning models, and improve the learning curve. Time flexibility and low cost are also advantages. Koksal (2020) maintains that online learning is the future and will undoubtedly replace land-based learning going forward.

Online learning also has some weaknesses. Among the most notable, according to the University of Illinois at Springfield (2020), are the following: (1) Not everyone can have the equity and accessibility to technology; (2) It requires self-motivated and high-level time management skills, which does not appear to be suitable for younger students; (3) The facilitator may lack essential online qualities; (4) lack of proper facilitator training, coupled with the fact that administration sometimes failing to fulfill its responsibilities; (5) insufficient levels of synergy leading to some topics not being suitable for online teaching, and (6) successful curriculum and teaching methods sometimes cannot be effectively applied in online courses.

The development of online education is closely related to the technological maturity of information technology and the Internet. Xu & Xu (2020) note that China's online education has experienced more than 20 years of development since the 1990s, and is roughly divided into the following five stages: (1) traditional education + content information; (2) digital education; (3) PC Internet Education; (4) Mobile Internet Education; (5) Intelligent Education.

The construction of information to support online education in China is developing at a rapid rate. According to the press conference from the Chinese Ministry of Education (2020), 98.4% of China's primary and secondary schools (including teaching points) had access to network in 2019; and, of this, 90.1% of primary and secondary schools had multimedia classrooms. And a CNNIC report (2020) maintains that as of March 2020, the online education users number in China reached 423 million which accounts for 46.8% of the total Internet users.

Online education has both education and Internet attributes. From the perspective of China's top 10 online education companies in 2019, Huawei OptiX Lab Xu & Xu (2020) maintain that companies that use online English teaching and live broadcast interaction are more competitive. Results of an internal survey undertaken by the staff of Huawei Technologies Co., Ltd., indicate that respondents believe the main problems of online course experience are as follows (Xu & Xu, 2020):

TOP1: The effect of teaching is the most concerned issue for users.

TOP2: Frequent exposure to electronic equipment affects children's attention and vision

- TOP3: Stuttering and image clarity issues during the online course affect the learning effect.
 TOP4: The online course application has too many entrances and lacks a unified platform.
 TOP5: Platform congestion, unable to log in, and slow response.

4.2 Quantitative analysis

The quantitative aspect of the data analysis was completed utilizing SPSS and SmartPLS. As mentioned earlier a total of 200 usable responses to our questionnaire were received.

4.2.1 Descriptive statistics

Table 2 descriptive statistics (educational background and basic information)

Variable	Classification	N	Percent
Gender	Male	83	41.5
	Female	117	58.5
Age	18 years old and below	4	2.0
	19-22 years old	24	12.0
	23-25 years old	123	61.5
	26 years old and above	49	24.5
Degree	Undergraduate	33	16.5
	Master's students	162	81.0
	Doctoral students and above	5	2.5
Concentration area	Management	82	41.0
	Science	6	3.0
	Engineering	77	38.5
	Economics	19	9.5
	Other	16	8.0

As indicated in the results of the descriptive statistics, male respondents accounted for 41.5%, and their female counterparts accounted for 58.5%. In all, 61.5% of the respondents were 23-25 years old, and 24.5% were 26 years old and above. In terms of the highest academic qualifications respondents were currently studying or had already obtained, 81% responded that they were graduate students. Regarding the major distribution of academic fields, 41% of the respondents were in management, and 38.5% were in engineering. Of these a total of 166 respondents (i.e. 83 %) had followed or have some knowledge of online courses.

We correlated some latent variables in SmartPLS¹ 3 Software in order to determine if there is a relationship between gender, age, highest degree, major, and the level of having some knowledge of online courses. The T statistics and P values tell us that age, highest degree, and major have a relationship with level of some knowledge of online courses.

Through the use of cross tabulation we found that respondents aged 23-25 years had a better level of knowledge about online courses. As for the highest degree, master's students had a better level of knowledge of online courses. Respondents whose major was science (100%) followed or had some knowledge of online courses.

Analysis of the survey data shows that the most popular TOP 3 MOOC websites in China are: <https://study.163.com> (67%), MOOC.CN (63.5%), and <https://xuexi365.com> (57.0%).

The TOP 3 main reasons for choosing online courses are: Improve ability (65.5%), Teacher or school requirements (50.0%), and Interest development (41.5%). Most of the respondents chose online courses because of self-improvement and development of interest, and only 4.0% are affected by Advertising.

The TOP 3 main concerns about the MOOC platform are:

- Teacher quality, course quality issues (65.5%),
- Cannot communicate and get feedback in time in the recording form (42.5%)
- Fund protection issues such as fees and refunds (39.5%).

¹ The PLS-SEM algorithm computes partial regression relationships in the measurement and structural models by using separate ordinary least squares regressions (Hair et al. ,2019).

The distribution of options in this question is relatively even. The options: “The form of live broadcast is greatly affected by network speed and equipment”, and “Personal privacy issues” are chosen by 32.0% and 24.0% of the respondents respectively.

The TOP 3 main problems with online courses are:

- Poor learning atmosphere (52.5%),
- Lack of contextuality (50.0%), and
- The teaching level of instructors ranges from good to bad (49.5%).

It can be seen that in order to solve the quality problem of online courses, we need to make improvements on these aspects.

As far as the Attitude Survey (Q7) (there are 6 items in this question) is concerned, we tested the reliability and the KMO². It shows that Cronbach’s Alpha³ is $0.874 > 0.8$, and the KMO value is $0.748 > 0.6$, Sig $0.000 < 0.05$. This clearly demonstrates that this question has good reliability and validity.

Overall, it can be seen among these descriptions, through the mean analysis, that respondents most agreed relative to the item: Compared with traditional classrooms, online courses break the limitations of time and space – i.e. 39.0% of respondents (n=78) strongly agreed with this.

From the frequency analysis, 42.5% of respondents (n=85) agreed with “Overall, I can complete the online course in time.”; 30.5% of respondents were neutral. 44.5% of respondents (n=89) agreed with the item: “I can consciously study online courses as planned”. and only 11.0% of respondents strongly agreed this. The numbers show that most users have a certain sense of self-discipline and time management for online courses. But only very few can consciously study online courses as planned. Only 2.5% (n=5) of the respondents disagreed with the item “Online courses meet people’s needs for high-quality online educational resources.” It can be seen that most respondents recognized this advantage of online courses. 44.5% of the respondents (n=89) agreed with the item “Online courses are conducive to promoting educational development in areas where educational resources are insufficient and unevenly distributed”. 37% of respondents (n=74) agreed with the item “Online courses cannot replace traditional offline classroom teaching.” 23.0% of the respondents were neutral about this item. Although most respondents recognized the advantages of online courses, only 4.5% of the respondents strongly disagree with the item “Online courses cannot replace traditional offline classroom teaching”.

4.2.2 Correlation Analysis

The results of linear correlation analysis show that there is a positive correlation between all of the indicated items in Q7.

Regarding Q12: On a scale of 1 (not at all important) to 5 (extremely important), please rate the importance of online course quality in your mind. The higher the score, the more important. There are 15 items in this question and the items are related to the user expectations of online courses. We tested for reliability and KMO sampling frequency to determine the suitability of our data for Factor Analysis. It shows that Cronbach’s Alpha is $0.941 > 0.8$, and the KMO value is $0.904 > 0.6$, Sig $0.000 < 0.05$. This clearly demonstrates that this question has good reliability and validity.

Test of the relationship between the 4 items and Satisfaction

We wanted to test whether expectations items (Q12) influence satisfaction (Q13). Results of T statistics and P values tell us that Course objectives and training plan item has a relationship with satisfaction of online courses. This effectively means that hypothesis 1a is supported. Hypotheses 2a, 3a, and 4a on the other hand are not supported.

Test of the relationship between the 4 items and Attitude

We also wanted to test whether expectations (Q12) influence attitude (Q7). Here we mainly detect that item 3 (Compared with traditional classrooms, online courses break the limitations of time and space.), item 4 (Online courses meet people’s needs for high-quality online educational resources.) and item 5 (Online courses are conducive to promoting educational development in areas where educational resources are insufficient and

² We tested for reliability and Kaiser-Meyer-Olkin (KMO) sampling frequency to determine the suitability of our data for Factor Analysis.

³ UCLA (2020) notes that “Cronbach’s alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability.”

unevenly distributed.) in Q7 are related to the advantages of online courses. These findings tell us that Course objectives and training plan dimension, Course content design dimension and Faculty and teaching process dimension all have a relationship with attitude of online courses advantages, indicating that hypotheses HP 1b, HP 2b and HP 4b are supported.

Test of the relationship between the 15 items and Satisfaction

We further analyze the specific 15 items to see whether there is a relationship with the user satisfaction of online courses. We correlated these 15 items with Q13. Below are the results of the analysis:

The analysis result suggests that A1 “Curriculum goals and training programs meet the needs of the times and social development”, B2 “Rich MOOC course resources”, B3“MOOC course content design is integrated”, B4 “MOOC course content design is scientific” and D2“The teacher's teaching level is superb” all have a relationship with user satisfaction of online courses. This effectively means that hypotheses 1a,4a,5a,6a and 11a are supported. (For more details of the results please refer to the Figure 2 below).

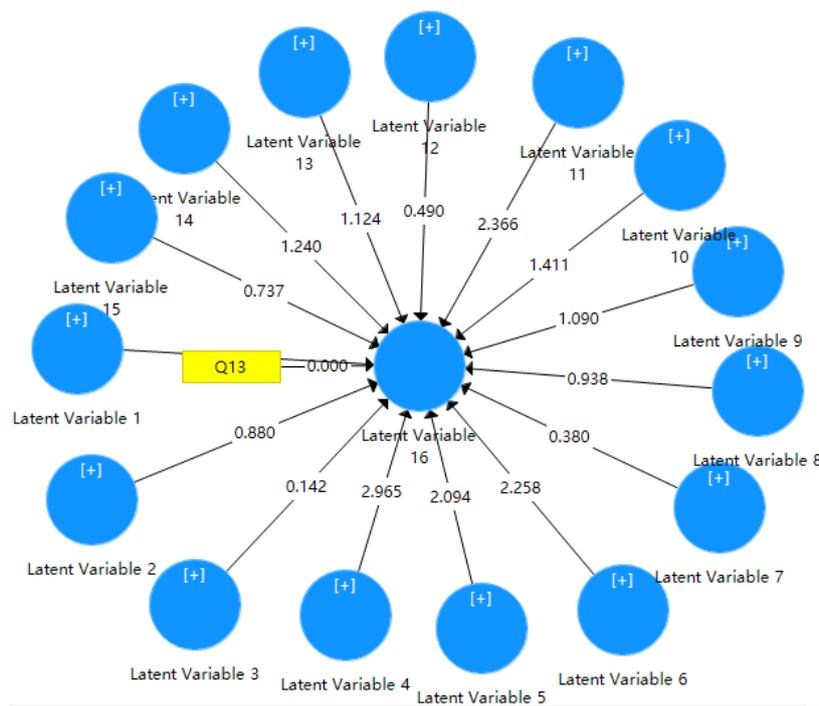


Figure 2: Key Factor analysis (15 items)- Satisfaction

Test the relationship between 15 items and attitude

Similarly, we test the relationship between these 15 items and attitude of online courses. The attitude here mainly refers to the attitude towards the advantages of online courses, corresponding to Q7's 3, 4, and 5 items. The degree of recognition of the advantages of online courses also reflects user satisfaction to a certain extent.

In the Estimated model $NFI=0.974 > 0.9$, $SRMR=0.018 < 0.05$. This means that the model fits well. The analysis result suggests that A1 “Curriculum goals and training programs meet the needs of the times and social development”, C1“Satisfaction evaluation and course evaluation can be carried out” and C2“There are homework and tests” all have a relationship with attitude of online courses. This effectively means that hypotheses 1b, 8b and 9b are supported. (For more details of the results please refer to the Figure 3 below).

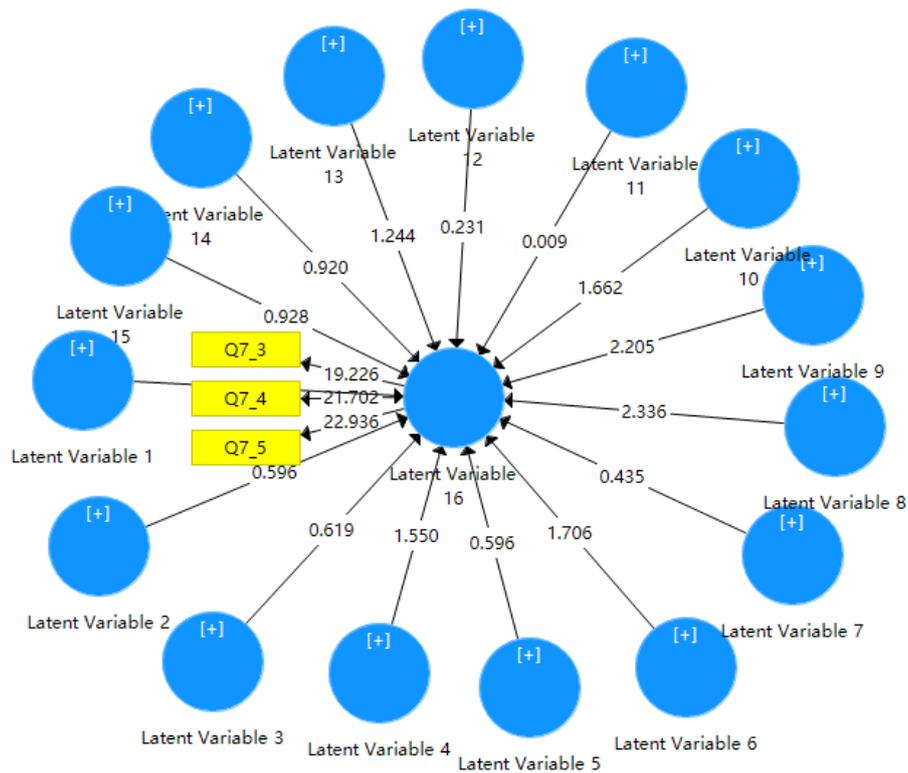


Figure 3: Key Factor analysis (15 items)- Attitude

4.2.3 Net Promoter Score (NPS) Analysis

For Satisfaction (Q13) this particular question, we utilize Net Promoter Score (NPS) scale which is an important indicator of customer experience management. In essence, it is a kind of customer reputation and loyalty behavior.

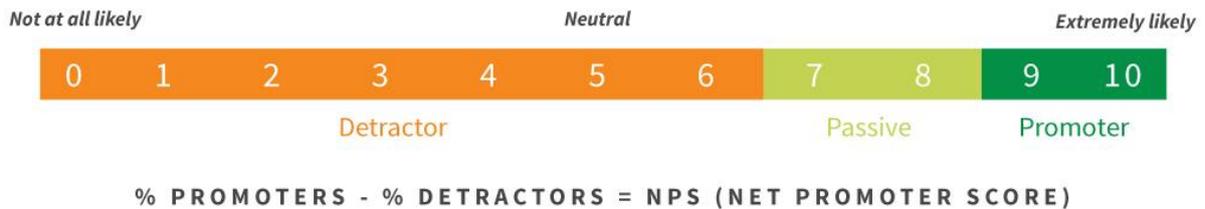


Figure 4: Net Promoter Score (Satmetrix Systems, Inc., 2017)

According to the developer of NPS, (Satmetrix Systems, Inc., 2017), “Respondents can be grouped as follows:

Promoters (score 9-10) are loyal enthusiasts who will keep buying and refer others, fueling growth.

Passives (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings.

Detractors (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.”

From the Mean=7.63 (here in SPSS 7 equals 6 in NPS scale), we can see that overall, the respondents scored 6.63 in NPS regarding online courses. It means that, in general, respondents are of the opinion that the probability they would recommended online courses to a friend or colleague is 66.3%. There are 25 promoters which accounted for 12.5%. The major part are passives (n=99) which accounted for 49.5%.

As far as Q13 is concerned, the NPS = 12.5% -38.0% =-25.5%. This suggests that online courses received a low NPS. This suggests that the future of online courses in China is bright but there is still a long way to go before users fully embrace it and can, without reservation, recommend it to others.

V. CONCLUSION

From the analysis of the collected empirical data our research has found that Course objectives and training plan dimension, Course content design dimension, and Faculty and teaching process dimension all have a relationship with attitude of online courses advantages. Specifically, “Curriculum goals and training programs meet the needs of the times and social development”, “Rich MOOC course resources”, “MOOC course content design is integrated”, “MOOC course content design is scientific” and “The teacher's teaching level is superb” all have a relationship with satisfaction of online courses. The indicators mentioned above provide an answer to our second research question: What are the key factors in the expectations and perceived quality of the management of online courses in China?

Among the factors affecting online course satisfaction in this environment course content was mentioned repeatedly. This was also confirmed in a study of online education that the content of the course is the single most important factor that determines the perceived quality of the online learning experience (Peltier et al., 2007). Like traditional courses, teachers' teaching level has also received great attention from online course users. Due to different teaching environments with the classroom, online education requires teachers to have corresponding information and technical skills. This is more complicated than face-to-face teaching, and it takes more time. It is not simply uploading files or correcting homework. How to design teaching content, teach more effectively, and better interact with students is a question worth thinking about.

VI. RECOMMENDATIONS

Based on the results of this research we would like to make the following suggestions for the further development of online learning in China:

(1) Optimize course content design and cultivate high-quality online education resources

With the help of Internet technology, speed up the sharing of high-quality educational resources. Online courses are often attended by a large number of people, and teachers cannot take each student into consideration and design differentiated course content for different student levels and characteristics to improve classroom efficiency. Therefore, it is necessary to provide information training for teachers in order to make teaching more easy and efficient.

(2) Multi-party collaborative participation to jointly improve the quality of courses

Encourage multiple parties to participate in the course construction of high-quality resources, encourage users paying behavior, and reward contributors with income to enhance the motivation for course construction. Within the budget, celebrities can be invited to attend online courses to increase the enthusiasm of students to participate in course interaction. Introduce third-party experts to design satisfaction evaluation and course evaluation questions in order to get precise course effect and feedback.

(3) Develop an intelligent online course ecosystem

Online courses can obtain a large amount of user data, as such we should use data analysis technology to mine the user's real learning behavior and learning effects reflected behind the data. From the technology, we can optimize learning paths and improve user learning efficiency. In this intelligent online course ecosystem, it can automatically set up questions for key points, check for omissions in a timely manner, and strengthen and consolidate what users have learned. According to the knowledge points learned by the user, it matches appropriate homework and exercises.

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