

MOOC Online Teaching and Information Entropy Evaluation Model for "China's Tax System" Considering Ideological and Political Elements

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Abstract. This paper studies the MOOC online teaching of "China's Tax System" considering the ideological and political elements, and constructs the MOOC online teaching evaluation model of "China's Tax System" based on information entropy. Firstly, the article analyses the necessity of incorporating ideological and political elements into the teaching reform of the MOOC course of "China's Tax System", points out the shortcomings of the traditional teaching methods of "China's Tax System", and believes that MOOC brings about the reform of the traditional teaching mode of "China's Tax System" which considers ideological and political elements. Secondly, the article analyses the advantages of MOOC teaching method for "China's Tax System". Thirdly, the article provides a detailed analysis of the construction process of the MOOC for the ideological and political elements of "China's Tax System", and points out that the ideological and political education for the "China's Tax System" course MOOC focus on four aspects: tax history education, tax rule of law education, the cultivation of "people-oriented" tax value concepts, and tax function education. The MOOC course on "China's Tax System" contains a total of 35 short videos. The number of videos for each topic is 2-3. In terms of the design of "China's Tax System" MOOC platform framework, this article constructs the main teaching platform framework of "China's Tax System" MOOC platform, which includes five key modules: user management, learning, course management, course resource management, discussion area, and exam and homework. Fourth, the article analyses the ideological and political elements that need to be considered in the knowledge items of the "China's Tax System" MOOC course content. Finally, this article conducts empirical analysis on the influencing factors and evaluation of the effectiveness of MOOC construction. The conclusion of this article is that students are generally satisfied with the speed of watching teaching videos of online public elective courses on the MOOC platform, but 18.49% of students think that the speed of playing teaching videos is slow and there is a lagging phenomenon. Regarding the satisfaction of public elective courses on the MOOC platform, 35.34% of students think they are very satisfied; 62.93% of students think they are satisfied and can meet the basic learning requirements; 1.03% of students think they are dissatisfied and unattractive; 0.69% of students think they are unclear. This paper also constructs the MOOC construction teaching quality information entropy model of the online course "China's Tax System". Propose counter-measures and suggestions to improve the effectiveness of MOOC construction in the national taxation system.

Keywords: MOOC Online Teaching, Information Entropy Evaluation Model, "China's Tax System", Ideological, Political Elements

1 Introduction

Massive Open Online Course (MOOC) originates from the Online Open Course taught by David Wiley in the United States in 2007. MOOC is a Massive Open Online Course, which is a new model of online education. Generally speaking, MOOC is an open course published on the internet by individuals or organizations in a spirit of sharing and collaboration to improve the dissemination of knowledge. The origin of MOOC is supported by network technology. In recent years, online learning has flourished as a teaching method. Over the past two decades, the application of electronic learning has maintained a high growth rate worldwide. In 2012, top universities in the United States successively established online learning platforms to offer free courses online. Among the most prominent MOOC platforms are Edx and Coursera.

Online education in China began with the national quality curriculum project, launched by the ministry of education in 2003. The project has promoted the use of modern information technology in teaching. In 2012, the ministry of education launched the "Quality Video Open Course", and some high-quality cultural literacy MOOC originated from the online open course taught by David Wiley in the United States in 2007. MOOC is a massive open online course, which is a new model of online education. Generally speaking, a MOOC is an open course published on the Internet by individuals or organizations in a spirit of sharing and collaboration to improve the dissemination of knowledge. The origin of MOOC is supported by network technology. In recent years, online learning has flourished as a teaching method. Over the past two decades, the application of electronic learning has maintained a high growth rate worldwide. In 2013, the construction of the "National Quality Resource Sharing Course" by the ministry of education promoted the transformation and upgrading of national quality courses. The year 2013 is known as the "First Year of Chinese MOOC". On 8 May 2014, the world's largest Chinese MOOC platform was launched by the ministry of education's course.com and net ease cloud classroom, offering free courses at universities such as Peking University, Zhejiang University and others[1].

According to different characteristics, MOOC can be divided into two types: knowledge dissemination type MOOC, small private online courses. The main purpose of knowledge dissemination type MOOC is to disseminate knowledge, and this type of MOOC is similar to the traditional teaching mode. MOOC is based on the participatory teaching method, where students control their own learning progress and get their own answers through communication among classmates. This teaching model is new. Part of the curriculum knowledge comes from the teachers' teaching, part comes from the students' own generation, and the curriculum progress is constructed by the learners themselves. Small Private Online Courses (SPOC) are online courses designed by a dedicated team of teachers for a specific audience. Teachers use SPOC to teach, with the aim of enabling students to become active participants in the learning process, and to promote innovation in teaching models and teaching reform in higher education. Scholars believe that MOOC and open resources will become key drivers in the future development of teaching and creative research. MOOC has also brought about profound changes in the teaching model of "China's tax system", which contains ideological and political elements.

2 The necessity of teaching reform of the MOOC course of "China's Tax System" integrated with ideological and political elements

2.1 Shortcomings of Traditional Teaching Methods for China's Tax System Course

The traditional teaching mode of "China's Tax System" course is based on teaching. Teachers play a full leading role, make a detailed teaching schedule in advance, arrange teaching contents, design teaching methods and organize the whole process of teaching activities. The traditional teaching method mainly adopts the method of teaching by teachers and passive acceptance by students. Almost the whole class is taught by teachers, while students listen and take notes. Students retain the inform-motion given by teachers from classroom to classroom, from textbook to textbook. Even if modern teaching methods are used, they still cannot escape the "cramming" mode of teaching, which results in students' lack of initiative and enthusiasm for learning, and their thinking lacks individuality and creativity. The "duck feeding" approach cannot stimulate students' interest in learning. Students still passively participate in classroom teaching under the guidance of teachers, their enthusiasm and initiative are severely limited, and their acceptance and understanding of knowledge cannot be fully integrated[2].

2.2 MOOC brings reform to the traditional teaching mode of "China's tax system", taking into account ideological and political elements

MOOC has a complete set of teaching models and curriculum standards and has basic features such as accessibility, repeatability and emphasis on learning experience and interaction. MOOC "flipped classroom" can accelerate the transition from a teacher-centred teaching model to a new student centred model. MOOC has become an important research direction in the teaching reform of "China's Tax System" course.

In the past ten years, great achievements have been made in China's higher education reform. Based on the analysis of the questionnaire survey on the reform and teaching of ideological and political education in university courses, 41.38% of the students are very satisfied with the reform and evaluation of ideological and political education in university courses, and 51.72% of the students are satisfied with the reform and evaluation of ideological and political education in university courses, taken together, the overall satisfaction rate was 93 per cent. Zero.03% of the students are highly motivated, 65.52% of the students are highly motivated. Whether willing to carry out curriculum reform, 35.63% of the students are willing to, 59.77% of the students choose to. "China tax system" moocs are also popular among Chinese students. Moocs can take into account the ideological and political curriculum elements. The comparison between traditional Chinese tax system teaching and MOOC-based Chinese tax system teaching is shown in Table 1. [3]

Table 1. Comparison between traditional Chinese Tax System teaching and MOOC-based Chinese Tax System teaching

	The Traditional Chinese Tax System	Teaching Chinese Tax System based on MOOC
Learning styles	Limitations; teacher-led	Student choice

Teaching Resources	Based on the teacher's classroom schedule	Using computers and mobile phones to observe teaching video courses
Teaching process	Teachers meet students face to face	MOOC fully mobilizes students' subjective initiative in the learning process
Teaching effectiveness	The large numbers make it difficult to keep track of student learning	Learning task lists and viewing videos are published before the lesson; students develop a learning plan based on their actual situation
Teaching and learning assessment	Ordinary grade + final exam; teacher assessment	Software, assignments, student inter-assessment, teacher assessment

3 The connotation and advantages of MOOC construction in China's tax system considering ideological and political elements

3.1 Connotation of MOOC

MOOC Basic Connotations is as Table 2. [4].

Table 3. MOOC Basic Connotations

Words	Analysis
Massive	Conducts MOOCti-disciplinary, MOOCti-course teaching, where teachers and students can take courses online at the same time
Open	For internal students and faculty; for inter-campus students and faculty; for the comMOOCnity
Online	Online learning is generally required; online teaching platforms (MOOC platforms) are generally available
Course	Teaching content: standard-compliant, systematic courseware, document-based resources. Teaching and learning activities: online activities

3.2 Advantages of the MOOC teaching method of "China's Tax System" considering ideological and political elements

First, it is convenient to learn anytime and anywhere: as long as you have access to the internet, anyone can register for the MOOC course with ideological and political elements. The design of the MOOC platform and the interaction with students are designed for a large number of students. Students who register for the China's Tax System course can study by joining a study group for this course. The MOOC has a clear start and end time for classes. Students are required to study and submit homework online during the specified open hours, based on their weekly learning objectives and requirements, and take online midterm and final exams.

Second, diversified online knowledge acquisition. The main advantage of MOOC is that it is open to online interaction, which allows students to interact with each other based on their hobbies, willingness to learn, etc. They choose the required courses according to the schedule, conduct online discussion, on-site testing, and self-manage the learning process through the platform, to achieve interactive learning.

Third, it is conducive to online interaction. The MOOC, which contains ideological and political elements, is very different from the traditional forms of education in the past. This course involves two forms of interaction: student-student interaction and teacher-student interaction. For example, during the learning process, students can post any problems they encounter in the dedicated discussion area or learning forum of the course and solve relevant problems through MOOC discussion. At the same time, teachers will also provide about two hours per week of online forum time for real-time one-to-one interaction with learners[5].

4 Consider the construction of MOOC for the ideological and political elements "China Taxation"

4.1 Micro-classroom design

Consider the following micro-classroom design for the Civics element "Taxation in China" MOOC:

MOOC micro-classroom design of "Taxation in China" in our school is as Table 4. [6]

Table 5. MOOC micro-classroom design of "Taxation in China"

Topics	Contents of the topic	Methods and tools to be used for design and development
Topic One	Introduction of China's tax system in general, the status of taxation in fiscal and economic functions	
Topic Two	Basic concepts of taxation, what is included in the tax system	
Topic Three	Elements of the tax system, taxpayers, tax rates, tax items, tax objects, etc., tax principles, classification of taxes, etc.	
Topic Four	Object of VAT, VAT payers, VAT rates, VAT calculation principles	
Topic Five	Calculation of VAT	
Topic Six	Input tax reversal, VAT collection and management, etc.	
Topic Seven	The object of consumption tax, taxpayers of consumption tax and tax items	
Topic Eight	Calculation of consumption tax, collection and management of consumption tax	
Topic Nine	Tax elements such as the object of sales tax, the calculation of sales tax, and the collection and management of sales tax	
Topic Ten	Personal Income Tax	
Topic Eleven	Basic calculation of personal income tax	
Topic Twelve	Tax benefits and collection of personal income tax, the main problems of China's current personal income tax	
Topic Thirteen	Taxation objects of corporate income tax and corporate income tax rates	

Civic education in the China's Tax System course MOOCst focus on four aspects: education on the history of taxation, education on the rule of law in taxation, cultivation of the value of "people-oriented" taxation, and education on the functions of taxation. It is necessary to realize the deep integration of the political thinking elements of the course and the course content, and the deep integration of the political thinking elements of the course and the tax law course from the perspective of social hot issues.

The MOOC course "China's Tax System" contains 35 short videos. The number of videos for the introduction and each topic is 2-3.

Topic Four-teen	Treatment of tax basis of enterprise income tax, calculation of taxable amount of enterprise income tax
Topic Fifteen	Treatment of offshore income, corporate income tax collection and management, etc.

4.2 Framework design of the “China Taxation” MOOC Platform

The main teaching platform framework of "China's Tax System" catechism platform includes five main modules: user management, learning and course management, course resource management, discussion forum, and examination and homework. The learning and course management module includes functions such as class resources, course view, course learning, progress control, course quiz, question view, course test and learning results, which can realize the purpose of students browsing basic course information and learning progress online, organizing online learning, downloading or browsing extracurricular resources related to class time, and automatically recording students' learning hours. Rich and flexible tests encourage student initiative and greatly reduce the teacher's burden of correcting homework online[7]. The online discussion area is divided into a classroom MOOC area, a comprehensive discussion area and a teacher's Q&A area, which not only makes it easier for teachers to set discussion topics to guide students' thinking, but also leaves space for students to speak and discuss freely, learn from each other and establish online social relationships.

The examinations and assignments module includes features such as assessment methods, test management and course exams. It supports teachers in setting up question banks and flexible MOOC factor assessment methods that can objectively evaluate students' learning status; students can take course exams at the end of their studies and grades are given at the end of the exams.

4.3 Civic and political elements to be considered in the MOOC course content knowledge of “Chinese Taxation System”

The content of the reform of the "China's Tax System" course is as follows: research the course content and extract the ideological and political elements of the tax system. The content of the "China's Tax System" course includes an introduction to taxation, VAT, consumption tax, corporate in-come tax, personal income tax and environmental protection tax, real estate tax, stamp duty, and the tax collection and administration system. The ideological and political curriculum should explore and refine the ideology-cal and political elements of each chapter[8].

First, the "China's Tax System" embodies the ideological and political elements of national rejuvenation in the taxation system; second, the "China's Tax System" course embodies the ideological and political elements of the people's nature of the taxation system; Third, the course "China's Tax System" embodies the global ideological and political elements of the taxation system; Fourth, the course "China's Tax System" embodies the ideological and political elements of the rule of law in the taxation system; Fifth, the course "China's Tax System" embodies the ideological and political elements of the professionalism of the taxation system [9][10].

5 Empirical analysis of the influencing factors and evaluation of the effect of catechism construction

5.1 Empirical analysis of the reasons for choosing MOOC

Data analysis of reasons for choosing MOOC is as Table 6. [11][12]

Table 7. Data analysis of reasons for choosing MOOC

Name	Level	Percent- age	Level	Percent- age	Level	Percentage	Level	Per- centage
Videos of online MOOC	The speed is smooth	34.42%	It's okay overall	28.77%	slow and a bit stuck	18.49%	very fast	18.32%
Satisfaction	very satisfied	35.34%	satisfied	62.93%	unsatisfactory and unattractive	1.03%	unclear and indifferent	0.69%

In the survey of the speed of watching teaching videos of online public elective courses on the MOOC platform, students are generally satisfied with the speed of watching teaching videos of online public elective courses on the MOOC platform, but 18.49% of students think that the speed of playing teaching videos is slow and there is a lagging phenomenon, by appropriately improving the Internet speed of students' dormitory and optimizing the server of the platform, the problem of slow speed of playing teaching videos reflected by some students can be basically solved. Regarding the satisfaction of public elective courses on the MOOC platform, 35.34% of students think they are very satisfied; 62.93% of students think they are satisfied and can meet the basic learning requirements; 1.03% of students think they are dissatisfied and unattractive; 0.69% of students think they are unclear and indifferent. Survey on the purpose of using the MOOC platform for online public elective courses. The school offers online public elective courses to provide students with an additional learning channel, and if students can use this as the purpose of choosing courses, they will certainly be active in the future learning process.

5.2 Construction of the entropy model of MOOC construction teaching quality of "Chinese taxation" online course

The steps in building an entropy model are as follows.

Entropy theory is an objective allocation method that borrows the concept of entropy from information theory. Entropy is the calculation of the relative intensity of each index in terms of competition, given the set of evaluation objects and the determination of various evaluation index values. The entropy weighting method is a quantitative ranking method with a certain degree of objectivity. It is based on the degree of difference between observations of the same indicator to reflect its importance. The main operation steps are as follows:

There are m items to be evaluated n evaluation indicators, forming the original data matrix:[13]

$R = (r_{ij})_{m \times n}$:

$$R = \begin{pmatrix} r_{11} & \cdots & r_{1n} \\ \vdots & \ddots & \vdots \\ r_{m1} & \cdots & r_{m4} \end{pmatrix}_{m \times n} \quad (1)$$

where r_{ij} is the evaluation value of the i -th item under the j -th indicator.

Step 1: Calculate the entropy value e_j for j indicators:

$$e_j = -k \sum_{i=1}^m p_{ij} \times \ln p_{ij}, k = 1/\ln m \quad (2)$$

Step 2: Calculate the entropy weight w_j of the j -th indicator:

$$w_j = \frac{(1 - e_j)}{\sum_{j=1}^n (1 - e_j)} \quad (3)$$

Step 3: Determine the comprehensive weights of indicators β_j : Assuming that the weights of the importance of indicators are determined as α_j , $j=1,2, \dots, n$, combined with the entropy weights of indicators w_j we can get the comprehensive weight numbers of indicators j :

$$\beta_j = \frac{\alpha_j w_j}{\sum_{i=1}^m \alpha_i w_i} \quad (4)$$

The range of entropy values is generally $[0,1]$. The weights of each index can be judged according to the above.

6 Suggestions for countermeasures to improve the effectiveness of the construction of MOOC of National Taxation

6.1 Improve MOOC resources to enhance students' innovation ability

The construction of China Taxation Catechism course resources MOOC serve the professional construction. Focusing closely on the professional requirements of college students' education, the teaching contents are organized according to the course objectives, and the teaching resources such as electronic teaching materials, lesson plans, exercises, courseware, laboratory guides and references of the course are operated online through the established finance and accounting catechism course platform, so that students can study and make online teaching an extension of classroom teaching. The use of interactive links, such as discussion forums and peer evaluation of assignments, extends teaching in time and space and in-creases students' learning initiative through interaction.

Develop and improve the teaching management system of the MOOC platform.

The management of online classes on the MOOC platform needs to develop a perfect teaching management system. Strengthen the management of students' independent learning process. The school can easily monitor and manage students' classroom learning, but it is difficult to intervene in independent learning, so the traditional monitoring and management mode needs to be broken. On the one hand, we can rely on the catechism plat-form to implement technical monitoring and management. On the one hand, we can set up students' learning groups to achieve MOOC supervision and MOOC evaluation of students' performance. On the other

hand, we can set up student study groups to monitor and evaluate each other's performance. Transforming the role of university lecturers to equip them for online teaching on mooring platforms.

Teachers take the initiative to change the traditional teaching philosophy, establish a modern teaching concept centred on students' development, transform an indoctrination classroom into a dialogue classroom, and focus on cultivating students' comprehensive ability to solve complex problems. At the same time, it is also necessary for teachers to organically integrate modern information technology with course content so that students can enjoy learning and learning. The essence of modern teaching philosophy lies in the centre of students' development and the fundamental task of establishing moral education.

7 Conclusion

The information age is developing rapidly, experiencing automation, net-working and digitization, and wisdom in development, bringing development opportunities to the construction of catechism. This paper analyses the need for teaching reform of "China's Tax System" MOOC course with civic and political science elements, considers the construction of "China's Tax System" MOOC with civic and political science elements, and carries out the design of catechism course system and "micro-course" design for "National Taxation" structure course, and elaborates on the course construction, classroom teaching reform, cultivation of students independent learning ability and assessment and evaluation design. The design of the moot course system and the "micro-course" design are introduced. This method improves students' self-learning and active learning ability, and cultivates students' analytical and problem-solving ability and innovative practical ability. This paper constructs an entropy evaluation model of the MOOC construction and implementation effect of the online course "China's Tax System" which is an innovative product of the "Internet + Education" mode and has a wide space for future development.

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References

- [1] Gao Hongliang, Wan Liguang, Liu Chen. Exploration and Practice of Effective Learning Models Based on MOOC [J]. Journal of Hubei Normal University (Natural Science Edition), 2022,42 (03): 104-108
- [2] Gao Lei, "Research on the Practice of Ideological and Political Education in the Course of China's Tax System," Business Economics, 2022, pp.166-168+173.
- [3] Wang Wen, "Optimization of Ideological and Political Teaching Design of Major Courses: Taking China's Tax System as an Example," Higher Education Forum, 2021, pp.47-51.
- [4] Zhao Ying, "Reunder standing of Deepening the Reform of Teaching Methods of Professional Courses in Colleges and Universities -- Preliminary Thinking Based on the Course Chinese Tax System," Ezhou university journal, 2018, pp. 73-78.

- [5] Li Shuang, "Research on the Main Problems Existing in the Ideological and Political Construction of College Curriculum and Countermeasures," *Journal of northeast normal university (philosophy and social sciences edition)*, 2021, pp.137-144.
- [6] Hao Deyong, "The Problem Orientation, Logical Mechanism and Construction Mechanism of Curriculum Thought and Politics," *Journal of Higher Education Research*, 2021, pp.85-91.
- [7] Wang Qiao, Li Chungen, Chen Rong and Zhang Zhongfang, "Practice and Reflection on the Teaching Reform of the Course China's Tax System," *China University Teaching*, 2015, pp.62-65.
- [8] Wu Ruijia. Metacosmic technology empowering physical education teaching -- theoretical framework, application scenario and technical route exploration [J]. *Sports Science and Technology Literature Bulletin*, 2022,30 (07), pp.186-189.
- [9] Lin Shuangquan, "Reflections on the Construction and Teaching of MOOC in Domestic Universities," *Journal of Jimei University (Education Science Edition)*, 2021, pp. 49-54.
- [10] Shang Yunhe, "The application of MOOC resources in College English teaching," *China Audio-Visual Education*, 2017, pp. 125-130.
- [11] Li Manli, "The Characteristics of MOOC and the Principles of Instructional Design," *Educational Research of Tsinghua University*, 2013, pp. 13-21.
- [12] Xu Jianbin, Li Sheng, Peng Ruijuan. Analysis of the willingness of university teachers to transform their roles and its influencing factors from the perspective of MOOC: Based on a survey by the curriculum group of "China's Taxation System" [J]. *Higher Education Forum*, 2020, 253 (11), pp. 82-84.
- [13] Wang Q, Chen L. Evaluation on the coordinated development of agricultural modernization and informatization in Xiangganhuan-Anhui Province. *Journal of Chongqing University of Science and Technology (Social Science Edition)*,2014(12), pp.82-84+138.