Construction and Practice of Online Course Resources Based on Information Processing Theory: Taking “A Bite of Teochew Cuisine,” a Guangdong First-Class Course, as an Example

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Abstract: “Cantonese Cuisine Master” project is an important policy proposed by China to inherit Cantonese Cuisine culture, promote employment, and achieve targeted poverty reduction and rural revitalization. Confronted with the demands of more diverse education, it is an essential opportunity and task for the education system to consider how to construct high-quality online courses and pursue higher-quality “Cantonese Cuisine Master” projects in line with the new era. This paper, based on the theory of instructional media and information processing theory, will further clarify the demand, dilemma, and developing strategy of online course construction for culinary majors, and explore its construction and practice with the example of “A Bite of Teochew Cuisine,” a Guangdong first-class course.

Keywords: Cantonese Cuisine Master; Culinary majors; Online course resources; Information processing theory; Construction and practice

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1. Introduction

The curriculum represents the most important carrier and core element of education and teaching, and the quality of curriculum construction directly affects the level of education and the quality of personnel training. Since the implementation of the “Cantonese Cuisine Master” project, a lot of work has been performed by the education system in developing high-level teaching resources for the “Cantonese Cuisine Master” project, including teaching materials, teaching media, teaching platforms, and courses. Among them, the construction of curriculum resources, especially online course resources, highlights itself as an important channel for the education system to implement the heritage of Cantonese cuisine culture, cultivate talents, and promote Cantonese cuisine to the world.

2. Problem introduction and document retrieval

Online curricula are courses that rely on the Internet to complete the main teaching tasks, common forms of which include live courses, Massive Open Online Courses (MOOC), Small Private Online Course (SPOC), and virtually realistic training courses. Only MOOC and SPOC courses are referred in this paper.
2.1. Construction of first-class courses
The Ministry of Education pointed out that without the support of first-class undergraduate courses, it will be only empty talk in achieving the goals as a country which is strong in education, in cultivating first-class undergraduate talents, and to become the first-class education system in the world [1]. Therefore, they have comprehensively launched the construction of first-class undergraduate courses and implemented the “Double Ten Thousand Plan” of first-class undergraduate courses, aiming to squeeze out meaningless courses, develop golden courses, and use this as leverage to initiate a revolution of course quality in education. The construction of online first-class courses effectively alleviates the problem of uneven distribution of educational resources in China, and in a way promotes educational equity, which is the key and difficult point in the construction of courses. According to the keynote report of Wu Yan, director of the Department of Higher Education of the Ministry of Education [2], by October 2021, the number of online MOOC courses in China exceeded 47,500,000 with 364 million registered users. The number of students taking courses reached 755 million, of which 291 million received MOOC credits. Thus, China ranks first in the number of both MOOC courses and learners in the world. In 2020, the Ministry of Education identifies the first batch of national first-class courses, including 1875 online courses, 728 virtual experimental courses, and 868 hybrid courses. In 2021, a total of 1029 undergraduate colleges and universities, with 6300 online, virtual or hybrid courses, participated in the selection of the second batch of national first-class courses. The implementation of the “Double Ten Thousand Plan” for national first-class courses has effectively promoted the rapid integration of new technologies and platforms with educational teaching reform, which has become a trend of teaching reform after a phase of development. In addition, catalysis and pressure of the epidemic spawned a large number of SPOC courses in universities and vocational institutions.

After a search of the literature and related resources, it is found that there are about 68 online courses related to Cantonese cuisine (MOOC, SPOC, and online/offline hybrid courses included), which are covering culinary raw materials, Chinese dinner basic skills, Chinese dinner practical training, Chinese dessert practical training, culinary chemistry, culinary nutrition, culinary pedagogy, etc. The schools offering the courses include secondary and higher vocational colleges and undergraduate universities, dominated by undergraduates. Among the 68 courses, only “A Bite of Teochew Cuisine” has become a Guangdong first-class course, and national first-class courses have not yet been identified at present.

2.2. The requirements of online course construction from the perspective of the “Cantonese Cuisine Master” project
Launched in 2018, the “Cantonese Cuisine Master” project witnessed the training of 123,000 people and the employment and entrepreneurship of 336,000 people. There are now 184 Guangdong technical colleges and vocational colleges that is offering Cantonese cuisine-related majors, with 68,000 students enrolled in this course. 17 provincial key and special majors have been built and 100 provincial training bases and master studio have been established [3]. The “Cantonese Cuisine Master” project has gradually established itself as a strategic brand of Guangdong with a strong vitality and wide influence. With a solid mass foundation, market foundation, cultural foundation, and strong social demand manifested, it plays a unique role in winning the battle against poverty, stabilizing employment, and promoting rural revitalization [4]. According to the 14th Five-Year Plan of Guangdong Province for the high-quality development of three projects including “Cantonese Cuisine Master”, it is expected that by 2025, more than 200,000 people will be trained as “Cantonese Cuisine Masters,” employment and entrepreneurship will be realized for more than 600,000 people, and a “Cantonese Cuisine Master” project system will be built in which talents, industries, standards, and culture promote one another and develop in a linkage, to create a beautiful business card to display the Lingnan culture to the world [3]. Constrained by the fact that the scientificization
of traditional Chinese cuisine has not yet reached the level of datamation, the “experience” of cuisine teaching is still of great importance, especially the importance of the words and deeds of the old generation masters. The modern apprenticeship system is an important grip for the cultivation of culinary professionals, no matter in secondary vocational or technical colleges, higher vocational or technical colleges or undergraduate universities. The Cantonese cooking skills have been listed in the Intangible Cultural Heritage List of Guangdong Province and the Teochew cooking skills have even been listed in the National Intangible Cultural Heritage List, demonstrating the urgency of the protection of the old generation of Cantonese craftsmen and the inheritance and development of the traditional cooking skills.

The question is how to accomplish the above tasks in high quality. Within such an information era when the Ministry of Education is vigorously promoting education informatization and digital construction of educational resources, the construction of online culinary courses requires more attention. The construction of online courses combined with the introduction of online and offline hybrid teaching modes can effectively promote the “Cantonese Cuisine Master” project, solve the problem of outweighing skills and emphasizing results than theory and process, and finally realized the need of consolidating the foundation and expanding effect, inheritance, and development. With the help of online courses, the “Cantonese Cuisine Master” project can also exert its influence both at home and abroad, facilitating the promotion of the “Chinese Cuisine Prosperity” plan and the consolidation of the cornerstone of cultural confidence. How to build online courses for culinary majors under the perspective of the “Cantonese Cuisine Master” project? How can the online courses be applied to make the achievements on the “Cantonese Cuisine Master” project covering more people? How to spread some of the “online popular” courses abroad? Are the most commonly asked question. Therefore, it is of great social significance and educational value to comprehensively review and sort out the construction of online courses for culinary majors.

3. Construction dilemma and construction strategy of online courses for culinary majors

Culinary higher education in China has gone through 37 years of development and now it is entering a period of rapid development, as demonstrated by the formation of a complete talent training echelon from specialist to doctoral level, in which no less than 28 schools have opened culinary majors for undergraduate or higher levels [5]. There are two universities offering undergraduate culinary majors in Guangdong, namely Hanshan Normal University (Hanshi for short) and Lingnan Normal University (Lingshi for short), with the main goal of training culinary teachers for middle and senior level school.

3.1. Difficulty in the design and information processing of online courses for culinary majors

According to Stuart Hall’s coding theory, how the coding process works, firstly depends on the ideology and ideas of these communicators themselves, and then on their humanistic quality, professional skills, media literacy, and digital literacy [6]. The design and information processing of online courses is different from traditional courses when compared to online first-class course construction standards. The faculty of the culinary majors is primarily hands-on teachers, with most of the teachers of the hands-on courses come from the industry. The course design concept of this part of teachers remains relatively backward. The methods and concepts of the course design still limited to the traditional mode, they know less about the construction of online courses, and fail to understand more about teaching mode, teaching objects, teaching objectives, teaching methods, information processing, and teaching evaluation. Among all the 68 online courses related to Cantonese cuisine that have been built, nearly 90% of them adopt the mode of PowerPoint recording, and the single video is far more than 15 minutes, which is a simple condensed version of the offline courses. The supporting resources remain simple in form and content, making it impossible to form a matrix of “learning, testing, and evaluation” of the online courses and then a new teaching mode. It’s thus
difficult for culinary teachers to complete the design and information processing of online courses. As the quality of existing courses varies greatly, the overall utilization rate is not that high.

In response to this dilemma, it is suggested that the model of multi-disciplinary and multi-specialty integration and innovation should be adopted for the curriculum design. Experts in educational technology can be introduced, from the perspective of the “Cantonese Cuisine Master,” propose the overall planning of first-class culinary courses ranging from platform selection, professional curriculum system, learning mode, and curriculum framework to course content. Examples of the module planning of courses can be referred to Figure 1.

![Figure 1. Online curriculum construction plan for culinary majors from the perspective of the “Cantonese Cuisine Master” project](image)

As information processing involves a variety of forms, suitable expressions should be selected to ensure the teaching effect, such as power point presentation (PPT) recording or virtual recording for theoretical courses and video filming combined with metaverse technology for practical courses. Under the metaverse teaching mode, the time-space dimension of teaching will be expanded through mixed virtual reality technology to perfectly combine learning knowledge with practical application, breaking through many difficulties faced by the traditional teaching design and learning environment [7].

3.2. Room for improvement in the propagation force of the courses

Online first-class courses are different from traditional courses, prioritize the dissemination of the courses as one of the important points of inspection points. This is an inherent requirement of first-class courses. MOOC courses, in particular, are innate demands of large-scale open courses and are a new reflection of the information age in the field of education and teaching. In the national first-class courses online course evaluation index, there are indicators of openness, sharing scope, and social influence. Down to Guangdong’s first-class courses, the basic threshold for online first-class courses is at least 5,000 students taking public and general courses and 3,000 students taking professional courses. At present, there are 184 technical colleges, vocational colleges, and undergraduate universities in Guangdong offering Cantonese cuisine-related courses. Considering the base of 68,000 students, this basic threshold seems not a big problem. However, the fact is that only 2 out of 68 Cantonese cuisine-related online courses enjoy the participation of more than 1,000 students. Problems concerning inappropriate course design and information processing by the designers, ineffective two-way communication, and feedback between designers and students, as well as course propaganda and promotion still linger.
To solve this dilemma, the dissemination power should be improved, and designers need to consider the needs of students, tailor the learning objectives, and ideally make full use of big data portraits to properly combine the learning content, delivery format, and students’ needs (emotions included), and build a “scaffolding” for them in conjunction with the students nearest development zone. Under the role of guard [6], if students dominated by university students expand to teachers and students of secondary vocational and technical schools are mainly targeted, then the integrity of the subject system should be focused on. Meanwhile, if the students of “Cantonese Cuisine Master’ are mainly targeted, then practicality and applicability should be emphasized. On the other hand, as the improvement of dissemination power is affected by students’ interest in learning, quality of learning, the difficulty of the course, and other uncertain factors, therefore, it is important to strengthen communication, guide students to learn more, and improve the course through mutual communication to increase the influence. Finally, the dissemination of the course should also necessitate the media, especially the propaganda and promotion of the new media, which is different from the feature that “good wine needs no bush” featured in traditional courses. Online courses, as the product of the digital era, should be boldly promoted by new media such as Tiktok.

3.3. The disparity in students’ information literacy and knowledge level

The American scholars Tichenor et al. proposed the theory of “knowledge gap,” that is, the disparity in knowledge level. Due to the dissemination of massive knowledge, the economically well-off tend to obtain information faster than those poor ones. Especially in the 5G network and new media environment, in which the knowledge obtaining seems to be much easier, the disparity in knowledge level emerges, that is, the “knowledge gap” caused by differences in media literacy and the “knowledge gap” caused by differences in personal cultural quality. It is obvious that the week finds it hard to extract the essence and simplify the complicated information in the vast amount of information, often tends to be entertaining [8].

Online courses are characterized by breaking the barriers of time and space, and learners can learn anytime and anywhere, and maintain communication with designers and teachers, which requires learners to have the appropriate information literacy and knowledge level, and the ability to be smart learners under a smart education system. Learners are limited by their knowledge background, learning ability, and even gender and age, which can affect their acceptance of the course, and the learning effectively. Firstly, the learners’ recognition, acceptance, and ability to operate the platform’s operation rules affect the learners’ ability to correctly open the internal structure of the course, and identify whether the course is applicable to them, which in turn affects their motivation to learn. Secondly, the information literacy and knowledge level of different learners affect their learning effect and learning expectations, and lastly, the learners’ information literacy and knowledge level affect the completion rate of the course. The culinary practitioners even vary greatly in information literacy and knowledge level. Among the 68,000 students enrolled in culinary programs in Guangdong, there are only 1,000 undergraduate students, accounting for about 1.5%. The existing practitioners are mainly graduates from technical schools and secondary specialized colleges, therefore there is a dilemma in the construction of culinary online courses. How to make up for the gap in knowledge and how to establish a mechanism with universities as the main goal, participation of secondary and senior vocational colleges, participation of society, especially the culinary industry or associations, and support from the government, to realize a curriculum system featuring “quality equity and fair quality.”

In light of this dilemma, a linkage mechanism should be formed. Under the unified command of the leading group of the “Cantonese Cuisine Master” project, universities should be the main focus with the secondary vocational and technical schools and industries to form a culinary online curriculum construction alliance. Centering on students, it aims to stimulate the learning interest in the students, and build the curriculum in a targeted manner, especially build a curriculum with a higher coverage rate and better
enhancement in the professional core literacy of Cantonese cuisine masters. The construction of course precursors should be strengthened to fully display the rules of platform operation and the core content of the course to attract students and coach them to complete the course successfully. For course design, designers should consider the emotional design and timely reinforcement to attract students, tap, and stimulate their learning motivation and strengthen the learning effect. It is also suggested to establish a team of teaching assistants to strengthen communication and collaboration, provide timely assistance to students when they encounter difficulties, and improve their information literacy.

3.4. Improvement in the functions of the course platform
At present, the mainstream online course platforms include ICourse (China University MOOC), Zhihuishu Website, Xuetang Online, and Xueyin Online. The architecture of these platforms, all realizes intelligence, including convenient and fast course building modules, convenient access to the course online disk, and humanized interaction mode. Such multi-functional assessment system and relatively perfect learning data analysis module serve as the basis to ensure that China’s online education can lead the world. The undergraduate level of culinary majors belongs to basic core majors, and students are awarded a bachelor’s degree in engineering upon graduation, and the employment direction is mainly for vocational education teachers, therefore the curriculum boasts special features, such as professional attributes focusing on practice, course content is mainly multidisciplinary, and cross-cutting. But there is inadequacy in existing course resources, application scenarios developed by each platform for culinary majors, and even corresponding assessment systems, which need to be further developed.

Given this dilemma, the construction experience of the previously built online courses should be summarized to select suitable platforms, completing the overall design of application scenarios according to different course attributes. In addition, universities should join hands with multiple parties, especially enterprises, to strengthen the research and development of virtual reality modules for online practical teaching, such as introducing metaverse technology and adopting online and offline modes combined with mixed virtual reality technology to attract students.

3.5. Upgrade in the teaching effectiveness of the courses
The teaching effectiveness of online courses is more difficult to control, with various influencing factors, such as the lack of appropriate practice, the inability to communicate face-to-face, the existence of a delay in affirmative encouragement, and the difficulty in maintaining learning motivation. The same type of phenomenon exists in online courses for culinary majors, and even more in practical courses. For the online courses, questionnaires were distributed to the students who received credits, and after statistical analysis of 456 valid questionnaires, it was found that the order of motivation for choosing the course started from whether the course helped to improve culinary skills, whether the course was interesting, or whether the course suited the major, indicating that the students were more concerned about whether the course will improve their skills and satisfy their personal interests when choosing the course. The teaching effect is consistent with the course syllabus description, and the survey results showed that 65% of the learner choice have been achieved, 31% choice have been basically achieved, and 4% choice have been fail to achieve, meaning that 35% of the learners were dissatisfied with the learning outcome and there was more room for improvement. The low course completion rate is also an urgent problem at home and abroad, especially for the MOOC courses. Taking “A Bite of Teochew Cuisine” as an example, the students who participated throughout the whole teaching activities, completed the teaching tasks, successfully passed the assessment, and received credits only accounted for 51% of the total number of students who took the course.
In response to this dilemma, the suggestion is to strengthen the course design and link the course contents organically by strengthening the communication, especially timely feedback and live communication to stimulate students’ learning motivation, and open the course in small classes on a large scale to strengthen the collective consciousness of the class students, to facilitate group teaching and high-quality completion of teaching tasks.

4. Construction practice of “A Bite of Teochew Cuisine: a Guangdong first-class course

Teochew cuisine, as one of the three major schools of Cantonese cuisine, enjoys a high reputation both at home and abroad. In view of the fact that the cooking skills of Teochew cuisine have been selected as a representative list of intangible cultural heritage in Guangdong Province and the country, A Bite of Teochew Cuisine has been designed and produced to protect, pass on, and promote Teochew cuisine. The offline part of the course is for a precursor course and a university-wide general elective for the undergraduate culinary and nutrition education program at Hanshi. In 2019, the online part was awarded as the project construction of the Guangdong Provincial Quality Project (online open course); In January 2019, the course was published online on Chaoxing Learning; In February 2019, it was online on Xueyin Online; In March 2020, it was selected by the Propaganda Department of Guangdong Party Committee to be added online on Learning Power; In July 2020, it was awarded the First Prize of Guangdong Undergraduate University Online Open Course (Excellent Case of Online Teaching against the Epidemic); In November 2020, it was recognized as a Guangdong first-class course and then recommended by the Guangdong Provincial Department of Education to participate in the evaluation of national first-class courses in June 2021; and in December 2021, it was awarded the third prize for the Chinese Dinner Science and Technology Progress.

4.1. Course Design

The overall design of the course is based on the framework of constructivist learning theory, without being bound to a particular discipline, but adopting the key meaning of inclusion and use for Teochew cuisine. With “A Bite of Teochew Cuisine” independently constructed, it integrates modern knowledge of food science and hygiene and nutrition on the basis of inheriting traditional Teochew cuisine preparation techniques and recipes; not only should the essence of traditional Teochew cuisine be introduced from the perspective of history, culture, and folklore, but the exquisite production techniques should also be explained from simple to complex, and more importantly, the key meaning of its production should be analyzed with the modern scientific system. The course is designed to be an open online course that is both elegant and popular with a combination of both specialization and expertise. The specific micro-course script design is based on the concept of micro-course emotional design, and the three-layer design model of micro-course emotional design, which consists of an instinctive, behavioral, and reflective layer, is established based on the full analysis of the internal needs of culinary students to trigger the positive emotions of students, thus stimulate their learning motivation [10]. The course can be used as a general education course for tourism culinary, food science and engineering, food quality, and safety-related majors in colleges and universities, and also for practitioners and enthusiasts of Cantonese and Teochew cuisine, existing as a window for students, culinary professionals, and Teochew cuisine enthusiasts to learn about the national intangible cultural heritage of Teochew cuisine.

The course content of Teochew cuisine can be divided into ten parts, Teochew cuisine raw materials, Teochew cuisine classic dishes, Teochew snacks, Teochew cuisine medicinal food, Teochew cuisine cooking skills, Teochew cuisine banquet customs, Teochew cuisine sensory, and nutritional analysis. The whole picture of Teochew cuisine is displayed in a three-dimensional way within 32 hours (Figure 2).
The specific content is arranged as an overview of Teochew cuisine, mainly introducing the origin of the cuisine, the eight major cuisines, the history of the formation of Teochew cuisine, the geographical factors of the formation of Teochew cuisine, and the characteristics of Teochew cuisine. The basic line of the development of Teochew cuisine is explained from the perspective of history, geography, and folklore. The course on Teochew cuisine raw materials, mainly introduces the common ingredients of Teochew cuisine and their usage, including categorization from the perspective of the classification system, and then explain the use of special ingredients such as cabbage mustard and lion head goose with examples. The production of classic Teochew cuisine and Teochew snacks is separately introduced in Teochew cuisine classic dishes and Teochew snacks. These two courses, separating theory from the practical operation, firstly explain the theory thoroughly and followed by practical operation to help students to understand the production process of each classic dish, such as charcoal-grilled snail and red peach cake. In the course of Teochew cuisine medicinal food, the common medicine of Teochew cuisine and its application is introduced, presenting the classic medicine soup recipe to the students, and letting them to taste “why Teochew cuisine is the best Chinese cuisine.” Teochew cuisine cooking skills mainly introduce the common cooking techniques and their main points, showing each cooking technique individually, such as deep-frying, steaming, braising, frying, soaking, blanching, stir-frying, and demonstrating the preparation of the above classic dishes from point to side to form a matrix. Teochew cuisine banquet customs focus on Teochew cuisine banquet and its connotation, taking traditional Teochew cuisine banquet customs as an entry point to present the banquet process and precautions of modern Teochew cuisine, thereby participants can understand local food customs. Further, tasting techniques and nutritional value of Teochew cuisine are elaborated in the course of Teochew cuisine sensory and nutritional analysis. With sensory evaluation and food nutrition and health introduction, famous dishes such as beef hot pot is introduced in detail with standardized tasting techniques.

In addition to being a general education course on Teochew cuisine for the “Master of Cantonese Cuisine” project, “A Bite of Teochew Cuisine” has also been introduced into primary and secondary school classrooms as an online course on food, labor, and aesthetic education. The food nutrition education with the cultural factor of Cantonese cuisine, in particular, has been asserted to teachers and students. The content covers a full range of education using food as a carrier, from knowledge and skills education on raw
4.2. Course information processing and platform

The information processing of the course is in accordance with the requirements of the national first-class curriculum. The first step is to make unified plans and to write the course outline, teaching design, and lesson scripts; secondly, to implement the course ideology, focusing on cultivating students’ national sentiment, social responsibility, scientific spirit, professional ethics, and historical and cultural qualities. In this way, the course will reflect the trinity of knowledge transfer, ability cultivation, and value shaping; thirdly, to display the course in various ways, including virtual recording for the theoretical part adopts, high-definition recording plus macro recording for the practical part, and animation for some historical allusions; a total of 128 micro-lessons of no more than 15 minutes long are designed and produced, with corresponding consolidation exercises and extended reading to achieve the integration of learning, testing, and evaluation; fourthly, to build a teaching mode of “online learning, live linking, and offline practice,” which is conducive to strengthening the learning effect of students and is highly recognized. The reasons why Xueyin Online of Chaoxing Group is adopted by the platform lie in two aspects. One is the rich e-book resources of Chaoxing, which are easily to refer and serve as auxiliary resources, while the other is the rich media system of Xueyin Online, whose rich components can be used to build a diversified classroom interaction and strengthen the teaching effect.

4.3. Teaching Effectiveness

As of February 2022, the course has been watched more than 5.7 million times and studied by a total of more than 16,000 students or social elites, of which more than 10,000 students from 957 colleges and universities have enrolled in the course, and nearly 3,000 people have passed the examination with excellent scores of 85 and above and received credits. The course served nearly 5,000 community members in response to the call of the “Cantonese Cuisine Master” project. In addition, the course was held on the platform of Learning Power for Teochew cuisine lovers nationwide, with a total of 125,933 on-demand broadcasts in the first month, and Teochew cuisine was also demonstrated for learners and Teochew cuisine lovers in the form of Tik Tok, Kuaishou, and Chaoxing Live Broadcast with online exchange and interaction. The 9 live broadcasts attracted 11,511 people in total to watch. The related teaching video accumulated 9,323,000 plays on Tik Tok, favored by learners, and Teochew cuisine lovers nationwide.

5. Conclusion

The “Cantonese Cuisine Master” project serves as an important grip for Guangdong to solve the “big problem” of employment through a “small cut,” an important tool for the realization of rural revitalization, and a livelihood project. Based on the “Cantonese Cuisine Master” project, this paper discusses the needs, dilemmas, and construction strategies of online courses for culinary majors from the perspective of education systematically serving the “Guangdong Cuisine Master” project and people’s livelihood, especially in the context of the Ministry of Education’s vigorous promotion of education informatization and digitalization of educational resources [11]. The design and construction process of the online culinary majors is elaborated in this paper with the construction practice of “A Bite of Teochew Cuisine,” a
Guangdong first-class course, as an example. As a modest spur, it is expected that more people could be benefited from more online culinary courses, Cantonese cuisine culture better promoted, employment advanced, and rural revitalization realized.

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