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THE CONSTRUCTION OF "GOLDEN COURSES" FOR UNIVERSITY HEALTH MANAGEMENT IN THE ERA OF ARTIFICIAL INTELLIGENCE

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Abstract: In response to the call for constructing national first-class undergraduate courses and promoting educational reform, this study explores new pathways for artificial intelligence (AI) to assist in the development of "golden courses" in university health management, aiming to provide a reference for improving the current state of health education in universities. Through a literature review, the importance of constructing "golden courses" for university students' health management is recognized, along with issues such as outdated teaching content, obsolete teaching methods, and insufficient student engagement. Therefore, this study applies an interdisciplinary research approach to integrate AI technologies with university health management education, aiming to innovate teaching methods and improve teaching quality. Ultimately, an AI-assisted construction plan for health management "golden courses" is developed, encompassing the entire teaching process. This plan helps address the shortcomings of traditional health management courses, enhances teaching quality, and facilitates the transformation of educational outcomes, enabling students to acquire knowledge and skills for self-health management, thereby improving the overall health level of university students.
Keywords: University health management; "Golden course" development; Artificial intelligence

1 INTRODUCTION

In August 2018, the Ministry of Education issued the "Notice on the Implementation of the Spirit of the National Conference on Undergraduate Education in the New Era" (Jiao Gao Han [2018] No. 8), proposing that "universities should comprehensively review the teaching content of all courses, eliminate 'low-quality courses,' and create 'golden courses'". Significant achievements have been made in the construction of "golden courses," with academic exploration in this area becoming increasingly mature, particularly in ideological and political education [1], medical practice [2], and other professional courses. With the introduction of the "Healthy China" strategy, individuals' awareness of actively promoting their health has increased, along with a stronger desire for self-health management [3]. Given the inadequacies of traditional health education in universities, the unsatisfactory outcomes of health education, and the inability to meet the diverse health needs of university students [4], it is necessary to improve the content and methods of health education. As artificial intelligence (AI) has made significant contributions to societal and industrial development, the concept of "AI+Education" has emerged. For example, virtual simulation technology has been shown to significantly enhance teaching effectiveness in experimental teaching [5], and applying ChatGPT (Chat Generative Pre-trained Transformer) in medical consultation training for medical students can improve their learning outcomes and teaching quality [6]. However, there is limited research on using AI to advance the construction of "golden courses" in health management. Leveraging AI technology can promote the development of "golden courses" in health management, enrich health management content, improve teaching methods, and enhance teaching outcomes and course quality.

2 THE CORE SIGNIFICANCE OF CONSTRUCTING "GOLDEN COURSES" IN HEALTH MANAGEMENT AT UNIVERSITIES

While universities undertake the fundamental task of fostering moral character and cultivating talent, they must also emphasize the comprehensive development of students. Due to significant academic pressures and the influence of mass media and popular trends, university students face numerous health risks in their daily lives, which may even lead to adverse health outcomes [7]. Such situations pose a severe threat to the quality of future human resources and hinder the realization of the "Healthy China" objectives. Therefore, universities should actively promote the construction of "golden courses" in health management to enhance students' health management capabilities. This initiative not only improves students' own health and academic performance but also equips them to provide health guidance to their families and peers.

2.1 Constructing Targeted, Interactive, Innovative, and Practical Health Management Courses

Universities often focus on developing high-quality professional courses to enhance students' academic performance but neglect the cultivation of students' health management capabilities, with insufficient investment in health management-related faculty, funding, and equipment. Most students do not prioritize health management, believing that health management courses are unrelated to their academic studies, resulting in low enthusiasm for learning such

courses. Furthermore, the courses themselves have significant issues: the content of health management courses is often outdated and lacks novelty, teaching methods are overly simplistic, and the courses fail to attract students. The health management courses students receive are primarily limited to knowledge delivery, lacking practical application and innovation, and failing to effectively align with students' health needs. The course content does not integrate elements that interest students, such as weight loss, muscle building, dietary therapy, hair loss prevention, or skincare. Teaching methods predominantly rely on traditional lectures, with little interaction between teachers and students. The conventional teaching model restricts the dynamics of the classroom, as both teachers and students are confined to outdated teaching aids. Teachers struggle to present engaging content, while students face dull text and images, making it difficult for them to form a deep understanding and cognition of knowledge. This situation hinders the development of students' health management skills and literacy. Moreover, the "score-oriented" approach remains a persistent issue in traditional Chinese education. Although course evaluation methods have evolved to include attendance, class participation, and exam scores as a weighted average for final grades, this formative assessment method is relatively crude, making it difficult to monitor students' learning progress in real time, which is not conducive to providing tailored guidance. Therefore, university health management courses should be tailored to the needs of college students, incorporating targeted, interactive, innovative, and practical elements.

2.2 Adopting Diverse Teaching Methods to Develop Health Management Courses

Artificial intelligence (AI) has now deeply integrated into various sectors of society, such as healthcare [8], public health [9], and education [10]. With the development of AI, its relationship with health promotion and protection has become increasingly close, enabling the realization of personalized prevention [11]. AI-based educational solutions are becoming increasingly mature [12], and AI holds great promise in addressing the gaps in learning and teaching needs. The intelligentization of health management in universities is an inevitable trend, necessitating the exploration of practical pathways for AI-assisted health management course development. Artificial intelligence refers to the process by which computers and machines simulate human behaviors, including perception, learning, reasoning, analysis, and decision-making, through data processing and pattern recognition [12]. The five main subfields of AI include machine learning, deep learning, neural networks, computer vision, and robotics. In view of the current inadequacies in health education at universities, this paper will leverage artificial intelligence to explore practical pathways for the intelligentization of health management courses in higher education institutions.

3 UNIVERSITY HEALTH MANAGEMENT "GOLDEN COURSE" DEVELOPMENT SUPPORTED BY ARTIFICIAL INTELLIGENCE

3.1 Multimodal Analysis in Artificial Intelligence

Multimodal analysis refers to a technology that uses sensing devices and computer systems to analyze and process information such as text, behavioral data, and videos. This technology enables teachers to gain a basic understanding of students' behavioral lifestyles and health management capabilities before class, thereby facilitating tailored health management course instruction. By analyzing students' behavioral habits, interests, preferences, and psychological dynamics, each student is assigned a personalized label. This information is then transmitted to the teacher, allowing them to gain timely insights into each student's situation and develop a personalized health management course learning plan for them [13], effectively addressing students' actual learning needs. This approach can efficiently solve the information asymmetry issues inherent in traditional teaching methods and provides an innovative form of instruction.

3.2 Algorithm Recommendation

Algorithm recommendation refers to a series of activities that use mainstream machine learning algorithms to build data models, track user data, analyze user behavior, and predict user needs, thereby pushing relevant content to users. Currently, many applications (APPs) adopt this approach to closely align with user preferences, enhancing user "stickiness" to the APP. As an online education platform, China's MOOC (Massive Open Online Courses) provides students with access to a wide range of high-quality university courses, allowing them to select courses of interest as supplementary learning resources for health management. Compared with algorithm recommendation, ChatGPT, as a natural language processing technology, can automatically process and generate natural language, offering personalized services for university students by answering their questions about health management and providing guidance. Therefore, integrating algorithm recommendation and ChatGPT into university health education can meet students' individualized health management needs, enhance the online learning experience, and improve the overall effectiveness of course learning.

3.3 VR (Virtual Reality) + Classroom Practice

Virtual simulation technology, based on digitalization and simulation technologies, creates a virtual space that simulates realistic social scenarios, enabling individuals to independently perceive and experience these environments, thereby achieving a "fusion" between individuals and their surroundings. Artificial intelligence-powered virtual simulation

technology can construct immersive three-dimensional multisensory environments, creating a learning space where reality and virtuality intertwine, making interactive, cross-temporal, and cross-spatial education a reality [14]. Limited by factors such as space, experimental equipment, and consumables, many health management practice courses are conducted merely by watching videos and courseware, resulting in poor teaching outcomes. Virtual simulation-based experimental teaching provides students with a vivid, realistic, visual, and highly interactive learning and experimental environment, which can optimize classroom experiences and improve the effectiveness of practical courses [15]. Virtual simulation technology serves as a bridge to overcome traditional teaching barriers, ensuring the enhancement of offline teaching outcomes and supporting the implementation of health management practice training courses.

3.4 Intelligent Association in Artificial Intelligence

Intelligent association is not a specific artificial intelligence technology but rather a concept enabled by a range of core AI technologies, including natural language processing, machine learning, and intelligent mining technologies [14]. It facilitates the formation of connections between objects, effectively integrating formative and summative evaluations, allowing teachers to dynamically monitor the entire teaching process and aiding in the construction of a smart campus. Through the smart campus platform, teachers can provide students with learning guidance, evaluation, and intervention. This platform-based approach helps bridge the gap between teachers and students, streamlines communication channels, and enables timely interventions to care for and support each student, contributing to educational equity [16]. Additionally, the platform can be used to compare changes in students' health behaviors before and after participating in health management courses, providing auxiliary evaluation of teaching quality. The teaching model of health management "golden courses" based on artificial intelligence explored in this study is illustrated in Figure 1.

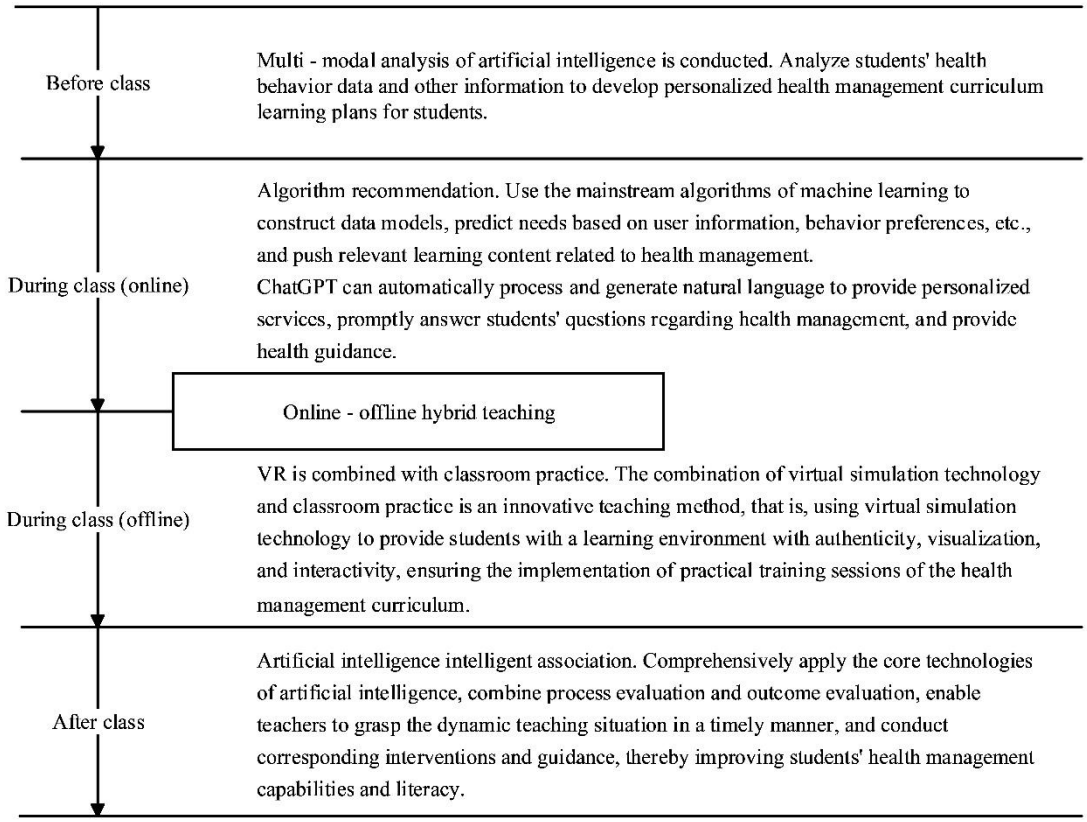

Figure 1 Flow Diagram of a Teaching Model Based on Artificial Intelligence

4 ADVANCEMENT STRATEGIES FOR BUILDING "GOLDEN COURSES" IN UNIVERSITY HEALTH MANAGEMENT

4.1 Goals for Constructing "Golden Courses" in University Health Management

From the perspective of course objectives, constructing personalized, interactive, innovative, and practical high-quality courses requires attention to the entire teaching process. The primary focus of teaching is on students, who are the central participants in the classroom; therefore, it is essential to fully engage students and meet their personalized needs. The teaching content serves as the source of students' learning, so it must be rich, integrate multidisciplinary knowledge, include high-quality materials, and be innovatively optimized by incorporating students' interests and societal trends. The teaching environment, or teaching scenario, encompasses online teaching, offline teaching, and blended learning that combines both. Offline teaching is constrained by space and time, limiting its potential effectiveness, while online

teaching requires a high level of student self-discipline [17]. Therefore, a blended teaching approach combining online and offline methods can enhance learning outcomes [18]. Teaching evaluation should adopt a diversified approach, balancing formative and summative assessments, and focus on transforming students' acquired knowledge into skills and competencies.

4.2 Practical Pathways for Building "Golden Courses" in University Health Management

4.2.1 Enhancing awareness of "Golden Courses" among relevant atakeholders

Enhancing awareness of "golden courses" requires targeted promotion and education for relevant stakeholders [19]. First, teachers and students, as the most direct participants and key contributors to the development of health management "golden courses," play a critical role. Teachers should cultivate a sense of responsibility for building high-quality health management "golden courses," improve course quality, incorporate contemporary features, innovate course design, encourage active student engagement, and ultimately help students develop health management skills and literacy. Second, universities can use campus broadcasting stations, official WeChat accounts, Douyin (TikTok), and other social media platforms to promote health management courses among students, increasing their interest in the subject. Third, universities should emphasize the importance of health management courses by ensuring robust support for course development, encouraging teachers to design and create health management "golden courses," and supporting research efforts by faculty and students on university health management courses. These research findings can then guide the development of health management "golden courses." Finally, the purpose of health management "golden courses" extends beyond imparting knowledge; it focuses on enhancing health management skills and literacy, promoting healthy behaviors and lifestyles among students, and fostering a positive influence on the people around them.

4.2.2 Improving teaching facilities for health management courses

Leveraging advanced teaching tools such as artificial intelligence multimodal analysis, algorithm recommendation, ChatGPT, VR, intelligent association, smart wearable devices, and smart classrooms can enhance the overall teaching effectiveness of health management courses. These tools not only improve instructional quality but also provide strong support for skill training in practical courses, allowing students to engage in immersive training for disease management and health promotion techniques. Additionally, it is essential to provide training for teachers to enhance their comprehensive capabilities, foster a sense of course innovation, and enable them to master advanced teaching tools proficiently [20]. By utilizing these cutting-edge tools, universities can improve students' classroom experience and initiative, fully empower them as active participants in their learning process, and cultivate a sense of proactive practice both in the classroom and in daily life.

4.2.3 Defining standards for university health management "Golden Courses"

In November 2018, the "Building China's Golden Courses" report proposed the "Two Characteristics and One Degree" standard for "golden courses," emphasizing advancedness, innovativeness, and challenge [21]. This standard is equally applicable to the development of health management courses. Advancedness focuses on the comprehensive cultivation of students' health management knowledge, skills, and literacy. Teachers should highlight the importance of developing students' health management abilities and literacy in their teaching objectives and actively stimulate students' autonomy during the learning process. The content of health management courses should align with cutting-edge requirements in contemporary health management, be continuously refined based on students' interests, and incorporate innovative approaches to enhance content quality and novelty while promoting active student interaction during lessons. Students should apply health management knowledge and skills to reflect on their own health status, independently explore learning opportunities, and engage in health management activities outside the classroom to improve their overall well-being. Challenge refers to the inclusion of not only basic health management concepts but also more technically demanding knowledge within the course. This ensures that students are encouraged to tackle advanced problems, which can only be mastered through dedicated effort, thereby inspiring enthusiasm for learning health management knowledge and participating in health management practices.

4.2.4 Constructing a curriculum system for health management "Golden Courses"

In line with the requirements for "golden course" development, efforts should focus on five aspects: teaching objectives, content, methods, tools, and evaluation. The teaching objective should aim to cultivate students' health management skills and literacy, enabling them, through course learning, to identify health risk factors, carry out corresponding health promotion activities, or provide health guidance to others [22]. In terms of course content, the curriculum should be enriched with engaging and illustrative case studies and virtual simulation scenarios. Beyond basic health management knowledge, the curriculum should incorporate practical teaching segments such as chronic disease management and training in health promotion skills. Additionally, teaching methods should be adapted to the characteristics of university students, utilizing diverse approaches that emphasize classroom interaction and encourage student participation. Teaching tools are essential for conducting educational activities; leveraging artificial intelligence teaching technologies can enhance the effectiveness of health management courses and foster students' full engagement in the learning process. Consequently, teachers should receive training in teaching tools to enable them to proficiently use AI teaching technologies, thereby improving their professional competencies. Course evaluation is crucial for summarizing course outcomes and improving course quality. Smart campus platforms and AI-driven intelligent association technologies can facilitate mutual evaluations between teachers and students, enhancing teaching outcomes. Teachers can use backend data to assess students' learning outcomes and provide targeted guidance and interventions, while students can evaluate

teachers' teaching effectiveness, give ratings, and propose suggestions for course improvement, fostering mutual growth in the teaching-learning process.

4 CONCLUSION

Exploring the research and practice of university health management "golden courses" in the context of artificial intelligence aligns better with the requirements of educational reform and meets students' needs for health promotion. The construction of health management "golden courses" in universities enhances the effectiveness of health education, adapts to the trends of proactive health in the current era, and represents a significant initiative toward realizing the "Healthy China" vision. Furthermore, it is essential to make rational use of AI technologies such as multimodal analysis, algorithm recommendation, ChatGPT, VR, and intelligent association while safeguarding students' personal privacy and addressing the ethical issues arising from the application of artificial intelligence.

COMPETING INTERESTS

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