

Article

Study on the Integration of the Sustainable Development Goals in Management Disciplines in Chinese Universities: A Content Analysis

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Abstract: Under the guidance of the “Education 2030 Framework for Action”, China’s higher education is moving towards internationalization, and there is an upsurge in a movement to strive for the sustainable development of education. However, the level and condition of the integration of the Sustainable Development Goals in management disciplines in Chinese higher education are not well studied. In this study, the content analysis method was used to encode and analyze the curriculum standards of management disciplines in Chinese universities to provide empirical evidence regarding the sustainable development concept of higher education in China. We concluded the following: (1) In general, the SDGs are not embedded broadly and deeply in management disciplines in Chinese universities; however, SDG 8 (decent work and economic growth) is the most significantly relevant element, being integrated broadly in many programs and courses of management disciplines. (2) There is a diverse concentration of the integration of SDGs in different management disciplines.

Keywords: Sustainable Development Goals; higher education; management discipline; content analysis; China



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1. Introduction

As a transformative concept concerning the health and well-being of humankind and future generations, the connotation of “sustainable development” has become more enriched and has become a universally recognized development concept around the world. Since the 20th century, environmental problems have attracted extensive attention from all countries, among which global warming, acid rain, and ozone layer destruction have been the main causes. People have begun to consider how to attain sustainable development, balanced development, and scientific development (Li et al., 2022; Roberto et al., 2022) [1,2]. In 1980, the framework for the conservation of global natural resources was published [3], and it suggested that sustainable development should look into the underlying connections between nature, society, ecology, economy, and the process of using natural resources in order to achieve global sustainability.

Bai and Bai (2022) proposed that to ensure sustainable development, we must respect nature, be inclusive, and base it on practice [4]. Similarly, Zhou et al. (2021) found that we must follow objective laws, and we should not exhaust our resources at the expense of harming the environment to achieve development [5]. With the further deepening of this concept, the theme of education for sustainable development (ESD) can be put into practice. The global action plan of ESD points out that the existing plan cannot completely solve all the problems of sustainable development education [6]. Therefore, we must rethink the relationships between people, which is of vital importance to the implementation of ESD. According to Brissett (2023), education is the primary driver behind development and is crucial for fulfilling the other Sustainable Development Goals [7]. Archana and Ajai (2022) have advocated for the application of SDGs in education, and insisted that higher

education should be updated to meet modern expectations and satisfy the demands of society and the environment [8].

From a global perspective, young students are not optimistic about the current knowledge of sustainable development, and there are still misunderstandings about the significance and implementation path of sustainable development (Biancardi, Colasante, D'Adamo, 2023) [9]. Higher education in China has been moving more rapidly in the direction of sustainable development. Over the course of several years, the SDGs have had quite a positive impact on both the research and teaching in higher education institutes in China. More and more universities are integrating concepts such as sustainable development, green development, ecological civilization, etc., into various curriculums. However, there are few studies and no consensus on the question of whether and how the SDGs are integrated into Chinese universities.

In order to realize the current developments in promoting ESD and the integration of the SDGs into Chinese higher education, this paper uses the content analysis method to analyze the curriculum standards of management disciplines in Chinese universities, and then applies a frequency analysis to determine the extent to which the SDGs are integrated into management discipline courses in China. This analysis provides empirical evidence for the reform of higher education and lays the groundwork for creating a sustainable development education system in China.

Figure 1 shows the 17 Sustainable Development Goals.



Figure 1. The 17 SDGs.

2. Literature Review

Since the UN General Assembly adopted the program guidelines, research on education for sustainable development (ESD) has gradually grown in popularity. The SDGs have become a hot research topic, and many scholars have conducted in-depth research on the relationship between the SDGs and other activities, through which the content has expanded to the field of higher education. The majority of research studies agree that in order to improve college students' capacity for sustainable development, the higher education system should continually expand its integration and promote the notion of sustainable development. Education is essential for instilling in young people a sense of sustainable development and motivating them to take sustainable action (Qin, 2023) [10]. Jucelia and Teresa (2022) [11] and Nyberg and Wright (2022) [12] studied the differences in the degree of inclusion of the SDGs in journals, and concluded that the inclusion of the SDGs in journals is relatively uneven at present; thus, it is necessary to incorporate the SDGs into learning. To solve this problem, Berrone et al. (2023) provided a framework to combine the Sustainable Development Goals with the academic literature, making it possible to further promote sustainable development education [13].

Other scholars have studied the important factors affecting sustainable development education. Sigahi and Sznclwar (2022) found that different SDGs have different effects on the ability of Brazilian students, thus realizing a new blueprint for future education in Brazil [14]. Dudek (2022) explored the relationship between open education and the SDGs, and the main obstacles from the perspective of open education [15]. In higher education, Goncalves et al. (2022) found that sustainable development education can develop because strategic planning is consistent at all levels of colleges and universities [16]. It is worth mentioning that Paola et al. (2022) found that the partnerships between different interest groups must be involved in management, that is, must meet SDG17 (Partnerships for the Goals) of the Sustainable Development Goals [17].

Some scholars have studied the role of the SDGs from the perspective of talents needed by enterprises in the future, and Bapuji et al. (2020) studied how to improve social concern by using sustainable development education [18]. Koh et al. (2014) found that the SDGs can help improve social inclusion from the perspective of social inclusion [19]. In addition, different from the first two, Flammer et al. (2019) pointed out that the incentive mechanism in enterprises is also one of the ways for enterprises to enhance their sustainable development ability [20]. It is worth noting that Ziegler and Oliveira (2022) found that reverse thinking in enterprise management responded to unsustainability [21]. It seems that all these studies show that building a sustainable development target system is one of the major trends in the future.

There are some cases of applying the SDGs to universities abroad. Yang et al. (2021) designed an art project related to sustainable development and applied it to business, and found that it can improve students' eyesight and enhance their awareness of environmental protection [22]. Aravindaraj and Chinna (2022) applied the Sustainable Development Goals to specialized courses on the logistics supply chain and put forward improvement methods [23]. Mariem et al. (2021) effectively integrated the SDGs into subject education so that students could better acquire the knowledge related to the SDGs [24]. In order to further improve the application of the SDGs in teaching, Christopher et al. (2022) designed an interdisciplinary sustainable development course, which laid the foundation for the development of global sustainable development education [25].

The other three studies are also worthy of our attention. Unlike other scholars, Walter et al. (2023) studied the perspective of students to explore students' attitudes towards the SDGs [26]. Furthermore, Biancardi, Colasante, and D'Adamo (2023) pointed out that young students are not optimistic about the knowledge of sustainable development [9]. Goralski and Tan (2022) paid more attention to the future trend of sustainable development, and they put forward that poverty theory will be an important trend of the SDGs in the future [27].

Judging from the development trends and research status abroad, the awareness of learning about the SDGs in developed countries is relatively mature. Generally, there are many successful cases and many mature experiences have been accumulated, forming an operation mode suitable for the sustainable development of their own universities. These experiences are worth learning about and applying to our country.

In China, domestic scholars' research on the SDGs has mostly remained in the initial stage. Yue and Chen (2022) pointed out that ecological civilization education will become the mainstream education [28]. Zhang et al. (2021) proposed that the study of ecological civilization should be included in higher education studies [29]. In addition, Yuan and Shen (2020), similar to the first two scholars, found that sustainable development education must be lifelong education [30]. Guan et al. (2023) highlighted that sustainable development education must strengthen top-level design [31].

The integration of sustainable development education into higher education is still in the theoretical stage and has not been put into practice. Based on the current growth in China, sustainable development education is evolving slowly. There has not been much research carried out on the SDGs' incorporation into China's higher education system, and therefore the issue is still unclear. As a result, the analysis of the degree to which the

SDGs are integrated into management disciplines at Chinese universities is helpful for the implementation of sustainable development education in China's higher education system and offers a theoretical foundation for the top-level design of the SDGs.

3. Materials and Methods

3.1. Data Acquisition and Analysis Methods

3.1.1. Content Analysis Method

Content analysis is a semi-quantitative research method. The essence of content analysis is the result of analyzing the change in all information, and it is the process of deducing accurate meaning from represented and meaningful words and sentences [32]. Specifically, this study systematically retrieved and collected the curriculum standards of management disciplines in higher education through the Internet. Then, the NVivo software was used to code the keywords and sentences, determine the categories, and calculate the frequency of the 17 SDGs to build a model to analyze the inclusion degree and characteristics of the SDGs of management disciplines in Chinese universities.

Content analysis can spread out the corresponding content, show readers' views on information, and present a new way of communication. Content analysis can make semi-quantitative analysis clearer and reduce the interference of subjectivity and uncertainty. By using this method, we can also reveal any hidden related content and accurately identify the quality of the content. Thus, this approach provides more detailed methods and results for semi-quantitative research.

The main advantage of content analysis is that it reveals the hidden facts and the internal logical structure of the text [33]. This study draws on the research framework of Huang [34], and through extensive reading of the literature and listening to experts' opinions, and after many discussions to form the standard test coding of management disciplines in Chinese universities, determines the coding framework required by the content analysis method.

3.1.2. Data Acquisition

Through reviewing the compulsory courses published by the Ministry of Education, this study collected the curriculum standards of relevant disciplines from the academic affairs offices, the public information for each major, and other documents on the official websites of universities. In addition to these documents, for the curriculum standards of relevant subjects not found on the official websites, this study used the curriculum standards of major universities obtained from MOOC platforms. After systematic searching, this study randomly sampled the curriculum standards of management disciplines in major universities from 2018 to 2022. First, the management disciplines were divided into six categories; then a certain number of curriculum standards were randomly selected from each category; finally, the final curriculum classification was formed, as shown in Table 1.

Table 1. Classification of 66 courses in management disciplines.

Subject Classification	Courses Selected from Different Disciplines in Chinese Universities
Management Science and Engineering	(1) Computer application foundation, (2) College physical education, (3) Ideological and moral cultivation and legal foundation, (4) College English, (5) Advanced mathematics, (6) Situation and policy, (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (8) The outline of the modern and contemporary history of China, (9) Basic principles of Marxism, (10) Economics, (11) Statistics, (12) Operational research, (13) Production operation management, (14) Marketing, (15) Accounting, (16) Financial management, (17) International finance, (18) Management information systems, (19) Organizational behavior, (20) Management decision models and methods, (21) Information management and information systems, (22) Engineering project management.

Table 1. Cont.

Subject Classification	Courses Selected from Different Disciplines in Chinese Universities
Business Administration	(1) Computer application foundation, (2) College physical education, (3) Ideological and moral cultivation and legal foundation, (4) College English, (5) Advanced mathematics, (6) Situation and policy, (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (8) The outline of the modern and contemporary history of China, (9) Basic principles of Marxism, (23) Management science, (10) Economics, (24) Technical economics, (18) Management information systems, (11) Statistics, (15) Accounting, (25) Intermediate accounting practice, (16) Financial management, (12) Operational research, (14) Marketing, (26) Economic law, (27) Introduction to the modern corporate system, (28) Corporate finance, (29) Human resource management, (30) Enterprise management.
Agricultural Economic Management	(1) Computer application foundation, (2) College physical education, (3) Ideological and moral cultivation and legal foundation, (4) College English, (5) Advanced mathematics, (6) Situation and policy, (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (8) The outline of the modern and contemporary history of China, (9) Basic principles of Marxism, (10) Economics, (23) Management science, (11) Statistics, (31) Agricultural economics, (32) Entrepreneurial management of agriculture-related enterprises, (33) Agricultural policy, (34) Agricultural product marketing, (35) Agricultural resources and environmental economics, (36) Introduction to agriculture.
Public Administration	(1) Computer application foundation, (2) College physical education, (3) Ideological and moral cultivation and legal foundation, (4) College English, (5) Advanced mathematics, (6) Situation and policy, (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (8) The outline of the modern and contemporary history of China, (9) Basic principles of Marxism, (37) Logic, (38) Introduction to law, (39) Introduction to sociology, (40) Political science, (41) Public management, (42) Public economics, (43) Psychology, (44) Public administration, (45) Public ethics, (15) Accounting, (46) Government budget management, (47) Public policy, (29) Human resource management, (48) Public relations, (49) Practical writing, (11) Statistics, (50) Theory and methods of social investigation, (51) Social security.
Library, Information, and Archives Management	(1) Computer application foundation, (2) College physical education, (3) Ideological and moral cultivation and legal foundation, (4) College English, (5) Advanced mathematics, (6) Situation and policy, (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (8) The outline of the modern and contemporary history of China, (9) Basic principles of Marxism, (52) Library science foundation, (53) Information resource management, (54) System analysis and design, (55) Modern information technology, (56) Document management and information analysis, (57) Information retrieval, (58) Information economics, (59) Intellectual property, (60) Strategic management, (61) Publishing, (62) Multimedia technology application.
Tourism Management	(1) Computer application foundation, (2) College physical education, (3) Ideological and moral cultivation and legal foundation, (4) College English, (5) Advanced mathematics, (6) Situation and policy, (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (8) The outline of the modern and contemporary history of China, (9) Basic principles of Marxism, (23) Management science, (10) Economics, (18) Management information systems, (11) Statistics, (15) Accounting, (16) Financial management, (14) Marketing, (26) Economic law, (63) Introduction to tourism, (64) Tourism economics, (65) Hotel management principles, (66) Tourism resources and development.

3.2. Analytical Framework

In this study, the management disciplines were divided into six categories, namely, Management Science and Engineering; Business Administration; Agricultural Economic Management; Public Administration; Library, Information, and Archives Management; and Tourism Management (see Table 1).

NVivo software was used to code the contents related to the 17 SDGs appearing in the curriculum standards. If SDG-related content appeared once in the curriculum standards, it was recorded as one, if it appeared twice, it was counted as two, etc. For example, in the course (66) Tourism resources and development, the phrase “enhancing awareness and ability to protect and develop tourism marine resources and forest resources” appears,

which corresponds to SDG 14 (Life Below Water) and SDG 15 (Life On Land) in Figure 1. Therefore, it should be recorded once under SDG 14 and SDG 15.

Two researchers were enlisted to help with the coding of the curriculum standard materials in order to guarantee their accuracy and reliability. First, the two researchers were trained to clarify the coding rules and SDG-related contents, and then they independently coded the 66 collected curriculum standards of management disciplines in Chinese universities, during which the researchers did not interfere with each other. After coding, Cohen's kappa coefficient was used to test the consistency of the two researchers [35]. The calculation formula of Cohen's kappa coefficient is shown in Equation (3):

$$P_0 = \frac{1}{n} \sum_{i=1}^g f_{ii} \quad (1)$$

$$P_e = \frac{1}{n^2} \sum_{i=1}^g f_{i+} f_{+i} \quad (2)$$

$$K = \frac{P_0 - P_e}{1 - P_e} \quad (3)$$

where P_0 represents the proportion of agreement between the two researchers; P_e represents the expected agreement between the two researchers under chance; the K value is Cohen's kappa coefficient; n is the total number of samples; g is the total number of categories; f_{ii} is the number of correctly classified samples in each category; f_{i+} is the real number of samples in each category; and f_{+i} is the number of predicted samples in each category. If the K value exceeds 0.75, it can be considered that the coding of the two researchers is reliable. The calculated kappa coefficient was 0.921, which was greater than 0.75, indicating that the coding reliability of the two researchers was good.

4. Results

4.1. The Overall Analysis of the Integration of the SDGs in Management Disciplines in Chinese Universities

The coding results showed that the SDG-related contents appeared 461 times in 66 courses. The degree of integration of the SDGs in the management disciplines of Chinese universities is not balanced. For example, the content of SDG 13 (Climate Action) related to climate change only appears once, while the content of SDG 8 (Decent Work and Economic Growth) promoting economic growth and ensuring employment appears 63 times, as shown in Table 2. It is worth noting that the relevant contents of SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), and SDG 16 (Peace, Justice, and Strong Institutions) all appear three times, that is, the common problems in international resources, including drinking water resources, clean and affordable energy, and global partnerships, are also rarely involved in the curriculum standards of management disciplines. It can be seen that the courses of higher-education management disciplines in China can basically cover all issues related to the SDGs. However, the courses pay more attention to individual social development goals, such as SDG 8 (Decent Work and Economic Growth) and SDG 3 (Good Health and Well-being), and less attention to goals related to vulnerable groups such as SDG 5 (Gender Equality) and SDG 2 (Zero Hunger).

Table 2. The frequency of curriculum standards corresponding to the SDGs.

SDGs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Frequency	7	5	28	10	6	3	3	63	11	11	20	14	1	4	5	15	3

4.2. Analysis of the Standard Frequency of Public Courses Corresponding to the SDGs

As shown in Figure 2, only course (6) Situation and policy involves SDG 1 (No Poverty) and SDG 2 (Zero Hunger), and the curriculum standards of other public courses are not mentioned. The course (2) College physical education is the most important source for Chinese university students to study SDG 3 (Good Health and Well-being), and the words “Good Health and Well-being” are mentioned in the course (2) College physical education up to seven times. The course (2) College physical education is also the only course that focuses on SDG 6 (Clean Water and Sanitation). The course (2) College physical education is a basic compulsory course for university students as regulated by the state. It is not only an important form of school sports activity, but also a more common mass sports fitness activity. There is also a certain type of participant or subject who chooses to participate voluntarily in sporting activities in order to improve their physical and mental health. Under normal circumstances, the course (4) College English mainly teaches generally about the subject and is supplemented by other English appreciation and business English courses. Moreover, college English teaching is mainly concentrated in the first to the third year of college, which is an important transition period from high school life to college life. In order to provide high-quality education for university students, college English teaching should follow the principle of classified instruction and teach students in accordance with their aptitude to meet the actual needs of personalized teaching. Therefore, only the course (4) College English is involved in SDG 4 (Quality Education). For example, taking online courses as an example, college teachers select high-quality online resources and introduce them before class to guide students to think positively and stimulate students to be interested in learning. Through the wisdom tree, QQ group classes, and other platforms (the wisdom tree and QQ group classes are both online tools to provide a cross between school and online learning for students in China), online teaching interactions can be effectively realized. Students can use online learning materials to listen and learn repeatedly anytime and anywhere and can utilize them to check and fill in gaps. Compared with other the SDGs, SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), SDG 14 (Life Below Water), and SDG 15 (Life On Land) are not included in the public courses of management subjects in higher education. Teachers teach (5) Advanced mathematics, (1) Computer application foundation, (9) Basic principles of Marxism, and (4) College English, which provide direction for college students’ future employment choices and help them broaden their employment options. Therefore, SDG 8 (Decent Work and Economic Growth) appears frequently in these courses. SDG 10 (Reduced Inequalities) appeared four times in total, including in (7) Introduction to Mao Zedong thoughts and socialism with the theoretical system of Chinese characteristics, (3) Ideological and moral cultivation and law, (6) Situation and policy, and (8) The outline of the modern history of China. These courses are all aimed at the welfare of the people, which will inevitably involve reducing inequality. SDG 11 (Sustainable Cities and Communities) and SDG 16 (Peace, Justice, and Strong Institutions) appear with the same frequency as the designed subjects. This is closely related to the similarities between the two topics. Only through the development of good and harmonious cities and communities can we build a more inclusive society. In many public courses, the research found that course (6) Situation and policy focuses on the SDGs via a wider range of topics, and it can also be said to be more integrated with the SDGs. (2) College physical education is more focused on health and well-being than other public courses.

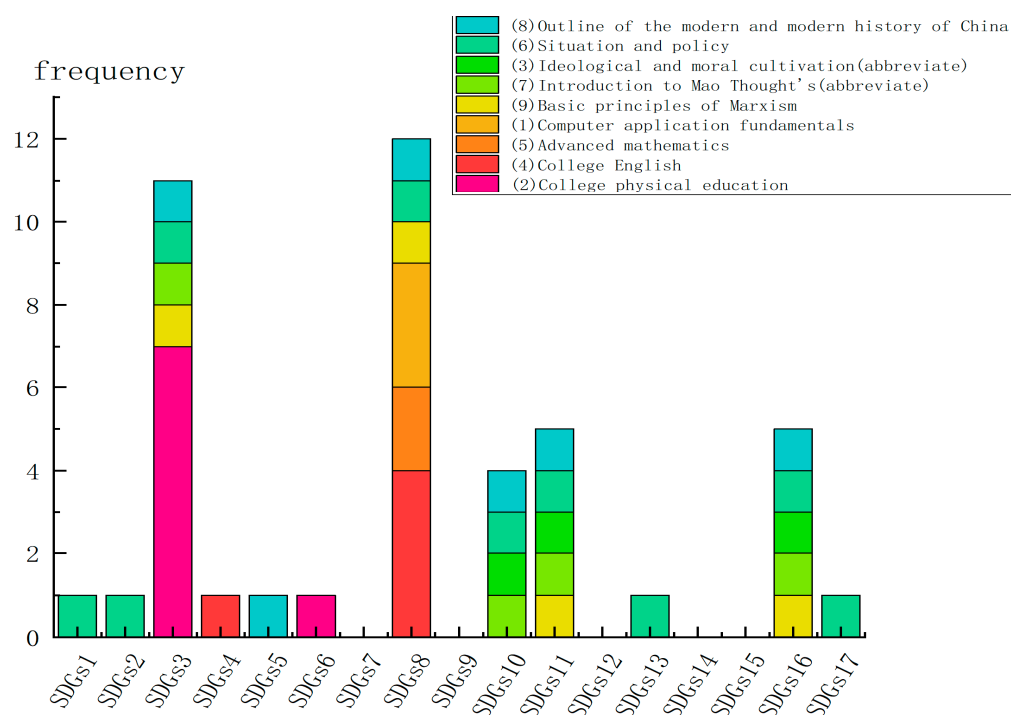


Figure 2. Inclusion of the SDGs in public courses of management subjects in higher education.

4.3. Analysis of the Frequency and Proportion of the Items of Each Major Course Corresponding to the SDGs

Figure 3 illustrates the extent to which, excluding public courses, each of the six majors is covered by the SDGs. SDG 8 (Decent Work and Economic Development), which is strongly tied to the employment-oriented orientation of universities, is related to the majority of management degrees. For instance, where Business Administration evaluates students' futures from the perspective of the sustainable development of firms, Agricultural Economic Management and Tourism Management place a greater emphasis on ecological environmental conservation. SDG 6 (Clean Water and Sanitation), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), SDG 15 (Life On Land), and SDG 17 (Partnerships for the Goals) are mainly included in the course (23) Management Science, but in this course SDG content is rare. This also shows that (23) Management science majors lack the inclusion of the SDGs compared with other majors. Public management is the major with the highest frequency of SDG content out of the management disciplines, and it pays more attention to the development and stability of society. Among them, Library, Information, and Archives Management is the only program that provides students with quality education as the premise. It is characterized by breaking through the boundaries of the discipline and professional field to meet the needs of students' all-around development and personality development. This shows that the SDGs are not highly included in the courses set up by the six majors, which are more focused on employment. Among them, SDG 13 (Climate Action) is not included in the major courses, which is contrary to the overall development of students' bodies and minds, and there is a certain irrationality to this decision. SDG 13 (Climate Action) is a strategic approach for coping with global climate change and realizing carbon peak and carbon-neutral policies. It is also a major reason for the country to promote the construction of an ecological civilization and the "Blue sky project". Therefore, management disciplines in higher education should strengthen students' learning of new technologies, new ideas, and climate response measures; expand the "ecological niche" of higher education; break the "flowerpot effect"; enhance their "resistance and stability"; and achieve the Sustainable Development Goal of "integration and symbiosis".

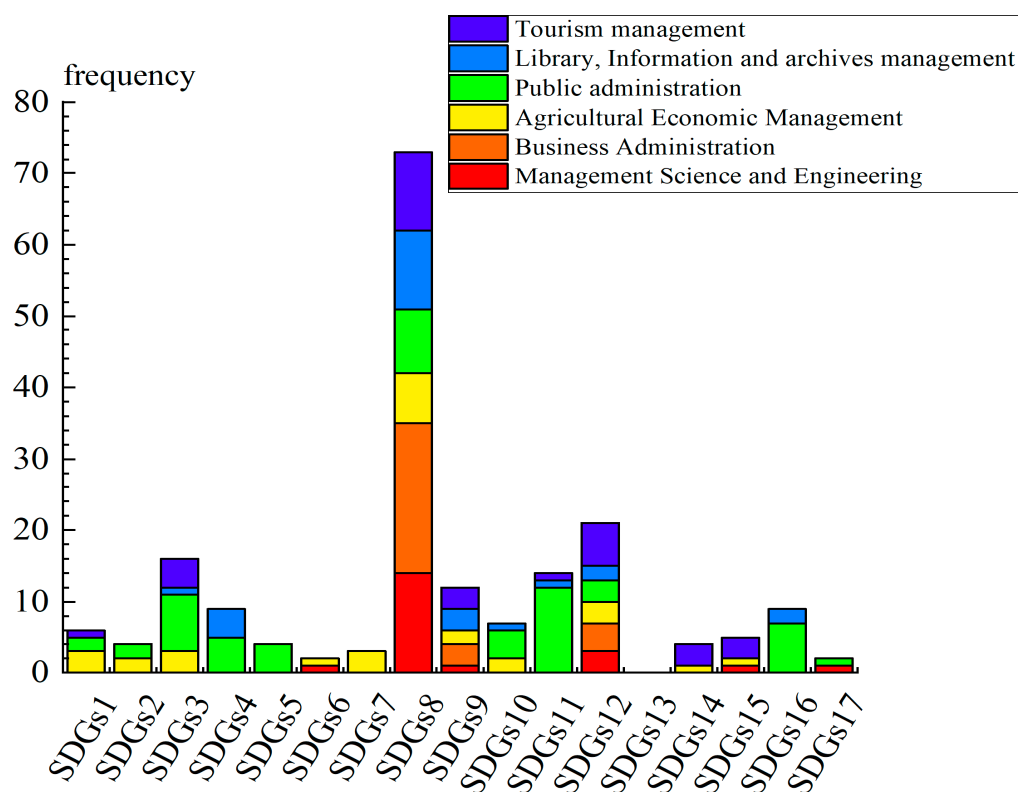


Figure 3. The degree of inclusion of the SDGs in the six major disciplines.

4.4. Analysis of the Subjects That Include the SDGs for Each Major

4.4.1. Financial Management Is the Main Field of Sustainable Development Education in Management Science and Engineering

The major of Management Science and Engineering has outstanding characteristics, such as talent training, but urgently needs to address social and economic development. The core goal is to cultivate students' scientific thinking, practicality, and engineering practice abilities. The four components of the curriculum system for Management Science and Engineering include the strategic objective of sustainable development, the legislation governing economic activity in support of sustainable development, a sustainable way of life, and social organization behavior. The course (16) Financial management takes finance and audit management as the main content, and risk management and value creation as the core values. The core goal of sustainable development education is to cultivate students' comprehensive quality of "understanding management, calculation, good financial management", and at the same time, cultivate students' innovation ability and social responsibility. It can be seen from Figure 4 that the frequency of addressing the SDGs in (16) Financial management is 13.04%, and the inclusion degree of other courses is around 8.70% and 4.35%. The SDGs involved in sustainable development education within Management Science and Engineering were concentrated, but the frequency of the SDG content was not high, as it only accounted for a total of 23 times. It is worth noting that SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 7 (Affordable and Clean Energy), SDG 10 (Reduced Inequalities), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), SDG 14 (Life Below Water), SDG 15 (Life On Land), and SDG 16 (Peace, Justice, and Strong Institutions) are all absent from the agenda, which indicates that these issues have not received much attention in the Management Science and Engineering profession.

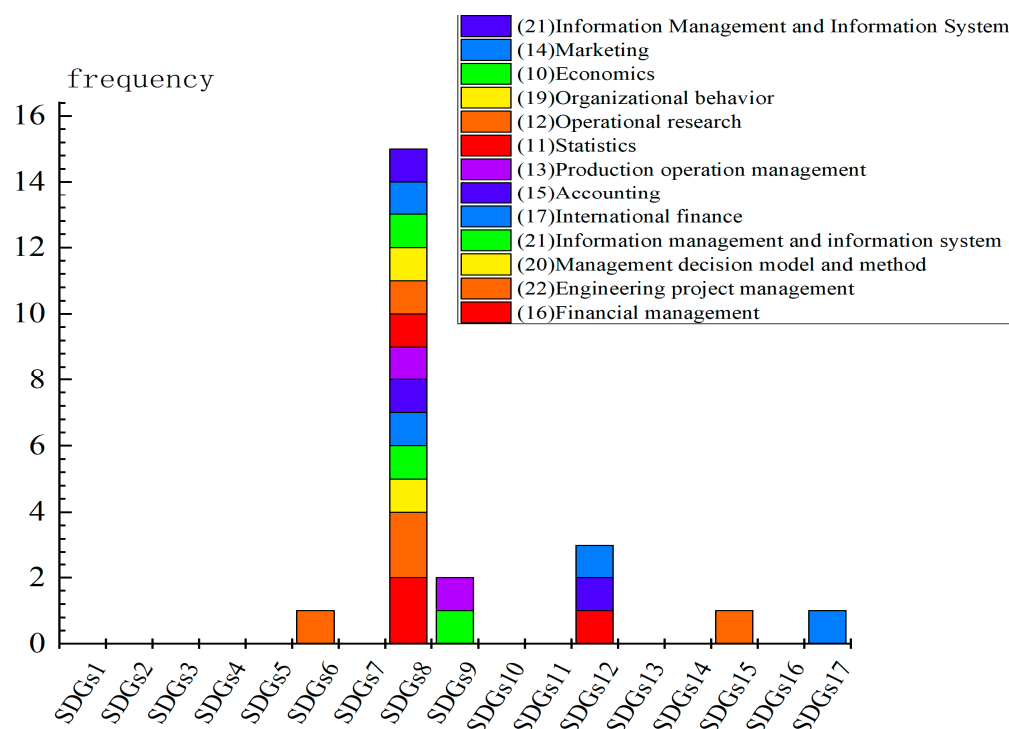


Figure 4. The degree of inclusion of the SDGs in Management Science and Engineering.

4.4.2. Financial Management Is the Main Field of Sustainable Development Education in Business Administration

Figure 5 shows that the education for sustainable development in Business Administration focuses on SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 12 (Responsible Consumption and Production), while the other 14 SDG issues occur at a frequency of 0. Economic globalization and the intensification of enterprise competition are the general trends of the world's economic development today. The negative impact of enterprise competition will continue to increase, and thus, the international community and governments of various countries are paying more attention to the sustainable development capacity of enterprises. Therefore, as the reserve talents of (30) Enterprise management, business management talents must pay more attention to the consciousness of “financial management and financial performance”. However, while cultivating Business Administration talents, higher education should also pay attention to cultivating students' innovative ability, sustainable development ability, and international vision. The training mode of Business Administration professionals in the new era should focus on multidimensional, collaborative innovation and reform, such as interdisciplinary disciplines, diversified teaching methods, and the optimization of practical teaching.

4.4.3. Agricultural Resource and Environmental Economics Is the Main Field of Sustainable Development Education in Agricultural Economic Management

On 26 November 1993, the United Nations Environment Program (UNEP), an international academic institution, was formally established in Paris, France, to study and solve the main problems facing the international agricultural economy, such as poverty, waste management, and environmental health. The agency has made great contributions to promoting sustainable development and Agricultural Economic Management in various countries and regions around the world. As a major agricultural country, China actively participates in global sustainable development action. As the main field of education on the sustainable development of Agricultural Economic Management, (35) Agricultural resource and environmental economics involves a variety of topics, including water resource utilization, clean energy, employment, underwater life, terrestrial life, responsible consumption, production, etc. SDG content appeared six times, accounting for 21.43% of

the Agricultural Economic Management courses, as shown in Figure 6. Compared with Business Administration and (23) Management science, the topics of the SDGs in (31) Agricultural economics and management were more widely included, and the SDG content appeared more frequently, at a total of 28 times. However, some issues were not covered. To meet the needs of China's agricultural economic development, sustainable development education activities aim to deepen students' understanding of China's national conditions, industrial characteristics, and sustainable development laws and apply them to the field of Agricultural Economic Management in a way that is both in line with those conditions and characteristics and that meets the advanced level of international practice. The development of Chinese higher education should continue in the direction of improving the quality of teaching and talent development, as well as cultivating students' overall quality.

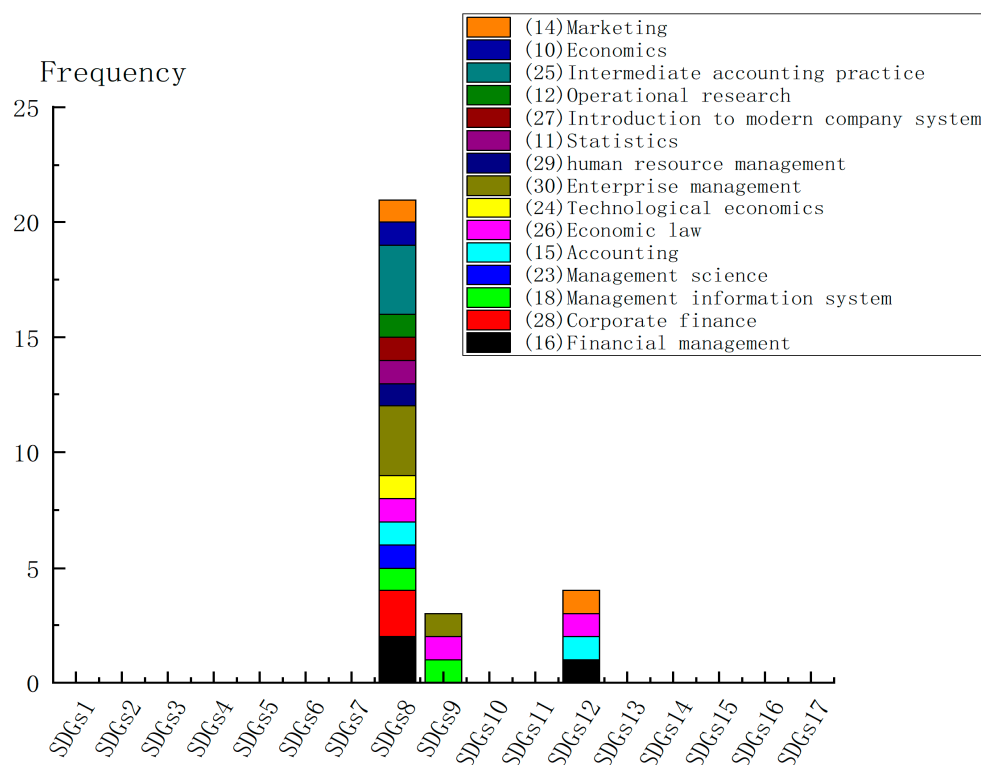


Figure 5. The degree of incorporation of the SDGs in Business Administration.

4.4.4. Social Security and Government Budget Management Are the Main Fields of Sustainable Development Education in Public Management

According to the content analysis, there are two SDG topics in the standard documents of the public management curriculum, which include (51) Social security and (46) Government budget management, as shown in Figure 7. The SDG content corresponding to the curriculum standards of public management majors appeared 61 times in total, among which (51) Social security and (46) Government budget management accounted for 14.75% (nine times) and 13.11% (eight times) of the total times, respectively, while the other subjects accounted for less than 10%. The courses (51) Social security and (46) Government budget management represent the main positions of sustainable development education for public management majors. It has always been the goal of the Communist Party of China to “realize the people’s yearning for a better life”. In the new journey of building a modern socialist country in an all-around way, we need to improve the service capacity of Public Administration departments and provide better, more efficient, equitable, and sustainable public goods and services to the people. The creation of the public management system in contemporary society also plays an essential and significant role in modern cities and government budget management systems. As a result, the foundation of public

management in regard to the sustainable development of education is the improvement of social development and human welfare.

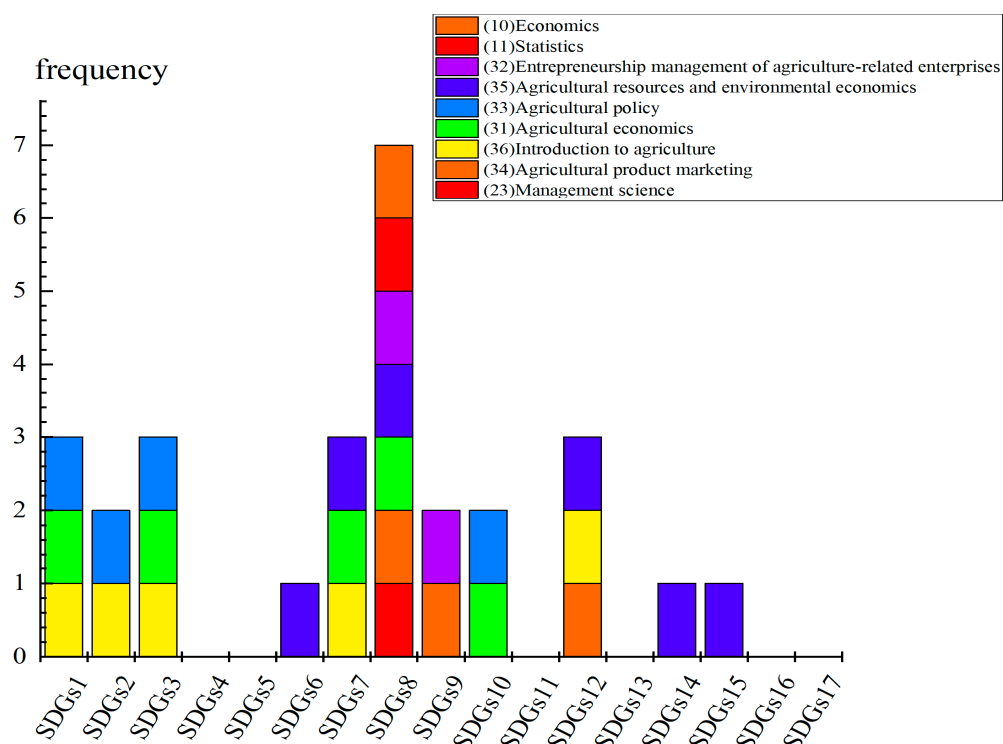


Figure 6. The degree of inclusion of the SDGs in agricultural economics and management specialty.

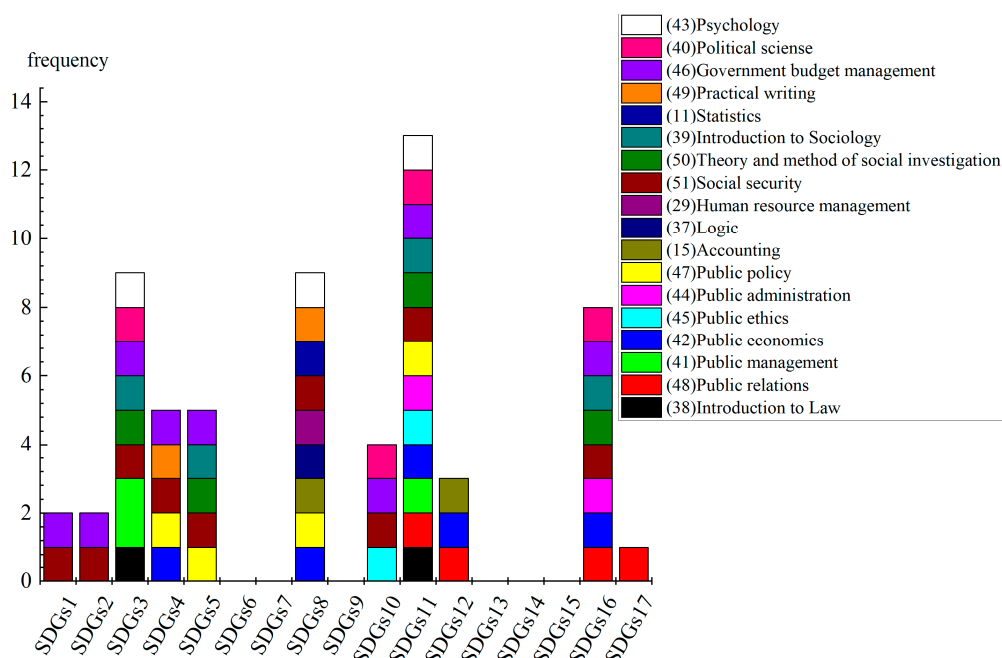


Figure 7. The degree of inclusion of the SDGs in public management.

4.4.5. Intellectual Property Is the Main Field of Education for Sustainable Development in Library, Information, and Archives Management

The strengthening of intellectual property protection in the Library, Information, and Archives Management specialty has strengthened the protection of intellectual property. According to statistics, there are 3.02 million trademarks in China, among which 133 are

well-known trademarks (well-known trademarks account for 80% of the total number of registered trademarks). The State Intellectual Property Office has raised the number of trademarks and new plant varieties from 325 to 863. According to incomplete statistics, the number of trademarks in China has exceeded 17,000. At the same time, readers suffer damages as a result of numerous cases of infringement that take place every year. Therefore, the IPR curriculum standards focus on SDG 3 (Good Health and Well-being), SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), SDG 16 (Peace, Justice, and Strong Institutions), and other topics with a total frequency of four times, accounting for 16% of the total frequency found for Library, Information, and Archives Management courses, as shown in Figure 8. A noteworthy point is that the Library, Information, and Archives Management major is the only major that mentions quality education in all four courses. The major implements a teaching mode that focuses on improving students' reading ability, reading strategies, and reading skills, and continuously promotes education for sustainable development.

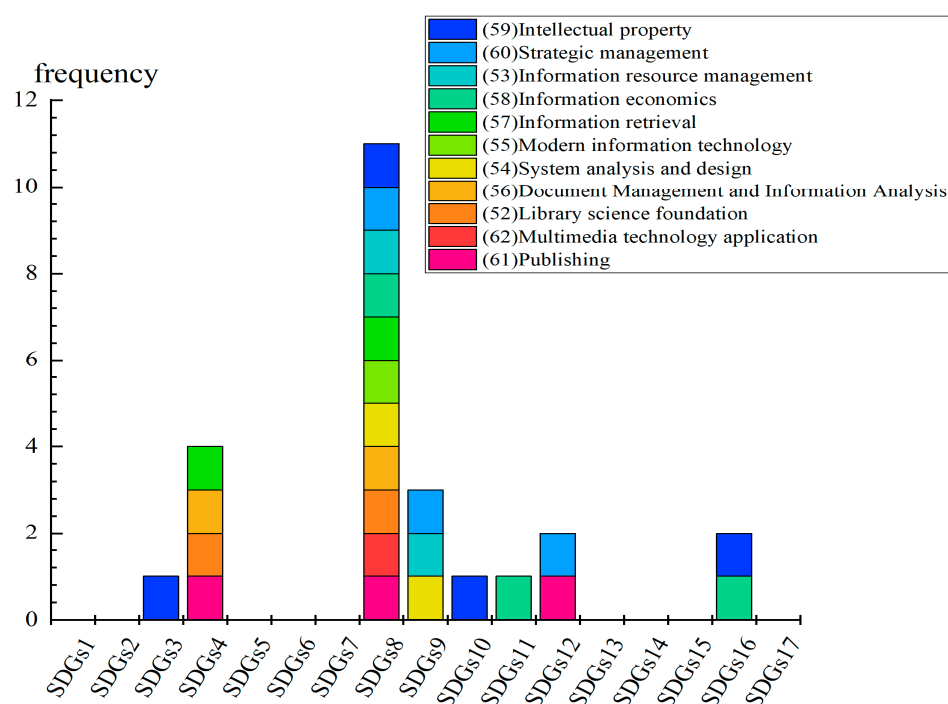


Figure 8. The degree of inclusion of the SDGs in Library, Information, and Archives Management.

4.4.6. Introduction to Tourism Is the Main Field of Education for Sustainable Development in Tourism Management

Tourism Management is meant to realize the harmonious coexistence between man and nature in tourism practices and is a process of constantly discovering, analyzing, and solving problems. The rapid development of China's tourism industry provides Chinese tourists with a new way of life, but also brings about many environmental problems. Therefore, the introduction of tourism pays more attention to the protection of the ecological environment. In-depth research on the theory of tourism resources is helpful to form a correct concept of tourism resource protection, rationally developing and utilizing tourism resources, and promote the sustainable development of tourism. The frequency of addressing other disciplines in Tourism Management was about three times, and the topics were scattered, but the content related to the SDGs was concentrated (see Figure 9). However, Tourism Management does not mention SDG 13 (Climate Action), even though it is among the management disciplines that should pay much attention to environmental protection. Why does this management discipline in universities not mention the issue of climate change regardless of whether it pays attention to environmental protection? This question is worthy of further investigation.

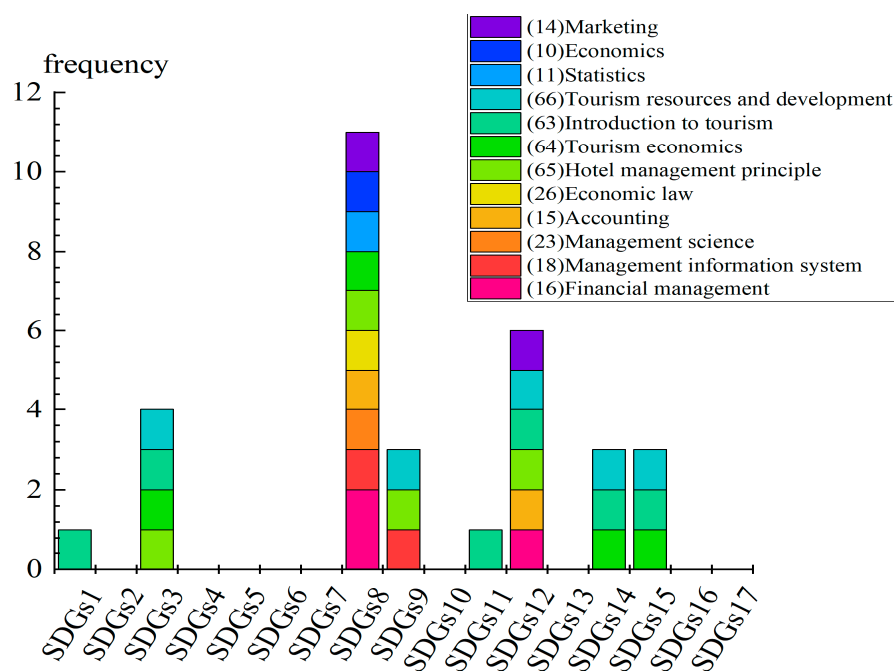


Figure 9. The degree of inclusion of the SDGs in Tourism Management majors.

5. Conclusions and Discussion

5.1. Balancing the Development of SDG Education in Management Disciplines

Although the SDGs have all been incorporated into management disciplines, many issues only appear in public courses and are not covered in professional courses, such as SDG 13 (Climate Action). The degree of the integration of the SDGs in management disciplines is still at a very early stage, and many issues related to the SDGs have not been integrated into programs and courses. Taking SDG 13 as an example, the content of SDG 13 includes urgent action to address climate change and its impacts. In 2021, the Chinese government issued the White Paper on China's Policies and Actions on Climate Change, which sets out China's new vision on climate change. It firmly establishes a sense of community, implements a new development philosophy, puts people first, and vigorously promotes carbon peaking and carbon neutrality as well as the synergy of reducing pollution and carbon emissions, thus pointing out the direction for actively responding to climate change. As the backbone for cultivating new green and low-carbon talents, Chinese universities should integrate SDG 13 into the higher education system to continuously promote the improvement of university students' mindset, knowledge, skills, and capabilities related to achieving sustainable development. Therefore, higher education curriculum reform and innovation must be sustainability-oriented, integrating the SDGs into course standards, and promoting the balanced development of sustainable development education in all majors. Furthermore, interdisciplinary research should be carried out among disciplines to cultivate the growth of new disciplines and better serve the goal of high-quality economic and social development in China. Finally, on the basis of the comprehensive consideration of the development trend in these disciplines, key subjects must support and plan to promote the balanced development of sustainable development education.

Only the balanced development of management disciplines can enable students to better cultivate their sustainable development abilities, make contributions to China's sustainable development education, and ultimately realize "moral cultivation".

5.2. Enriching and Merging Content into Public Courses and Professional Courses

The education model of Chinese higher education is based on professional courses and supplemented by public courses to jointly promote the healthy development of university

students. The inherent model is utilized for different majors, and even though there are different professional courses that last for several years or even more than ten years, it has never changed. In the information age of rapid development, higher requirements have been put forward regarding the knowledge system of college teachers. Gone are the days when the traditional “bucket of water” could irrigate all students. Nowadays, college teachers are required to have “a pool of living water”. They should not only have the knowledge system updated to modern day expectations, but also have the practical ability to nurture students continuously. According to an analysis of the SDGs’ degree of inclusion and other features in Chinese colleges, both professional and (41) Public management courses are not sufficiently absorbing new information. In 2021, Huang found that the curriculum standards of 13 basic courses in primary and secondary schools in Macao mentioned the SDGs with a total frequency of 454 times [34]. However, the total frequency of including the SDGs in 66 management courses in Chinese universities was only 461 times. This also shows that the curriculum of Chinese universities does not incorporate the SDGs to a high degree.

Therefore, this study believes that strengthening the inclusion of new content in public courses and professional courses is conducive to the accurate matching of talent training needs and rapidly transforming them into real productivity; it is helpful for enhancing education and teaching standards further and addressing the public’s increasing demand for better living conditions.

5.3. Based on the Subject Characteristics, the Knowledge System of the Sustainable Development Goals Is Formed

At present, the most respected Sustainable Development Goal in management disciplines in higher education in China is SDG 8 (Decent Work and Economic Growth). It exists in the curriculum standard of almost every course. This coincides with the concept of being “people-oriented” in the new curriculum reform. However, this is not the only goal needed for the future development of higher education in China. The key to meeting the goal of sustainable development is to cultivate some important abilities of students, such as their systematic thinking ability, anticipation ability, planning ability, and critical thinking ability. This cannot be achieved by only praising SDG 8. Therefore, higher education should be based on the characteristics of its own development, integrating other ideas related to the Sustainable Development Goals in the classroom and strengthening the linkage between disciplines after class to improve students’ sustainable development ability. In the future, colleges and universities can also arrange and combine courses that address different Sustainable Development Goal topics in various disciplines so that students can obtain complete guidance on the Sustainable Development Goals, which will meet the career development needs of all kinds of talents and provide talent support for social and economic development. As a talent training base, colleges and universities are duty-bound to cultivate compound talents to meet the needs of society.

6. Limitations and Prospects

6.1. Limitations

Based on the curriculum standards of higher education management disciplines, this paper analyzes the degree to which they include the Sustainable Development Goals, but is restricted by its own cognitive level. This paper also had some limitations in the research process: First, in terms of research methods, this paper mainly adopted the content analysis method, the selection of curriculum standards was not comprehensive enough, and the collected data were subjective. The second limitation was the research content, which mainly focused on the research of sustainable development education theory, and the combination of theory and concrete practice was less examined.

6.2. Prospects

In order to solve the shortcomings of this study, the future development direction is put forward: Firstly, the selection of curriculum standards for higher education management should be expanded and more in-depth research should be conducted. Secondly, after developing a certain understanding of the Sustainable Development Goals addressed by various disciplines, we can put forward better teaching strategies through corresponding arrangements and combinations.

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