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# Goal Progression, Trait Changes, and Practice Paths of Artificial Intelligence Ethics Education of Professional Courses in Higher Education



**Abstract:** - Artificial Intelligence as an emerging technology in a large number of applications at the same time gradually revealed many ethical issues. Artificial Intelligence ethics education has become an important initiative and a key link in the implementation of the fundamental task of moral education in Chinese higher education institutions, however, Artificial Intelligence ethics education in professional courses often lags behind the education of course knowledge and skills, and it is difficult to achieve the integration of the three educational requirements. This paper proposes that Artificial Intelligence ethics education in professional courses should meet the requirements of the progression of course teaching objectives and adapt to the changes of educational traits from explicit and implicit to integration, and puts forward a practical path of Artificial Intelligence ethics education in professional courses that is consistent with the objectives, adapted to the traits, and constructed with multiple synergies according to the progression of the educational objectives of the professional course system and the changes of the educational traits. This paper also proposes the following suggestions for ethical education in professional courses: in order to achieve the goals of ethical teaching, it is necessary to establish connections between courses at different stages of cultivation, so that each course forms a hierarchical, collaborative, and supportive relationship. After the relationship is established, it is necessary to strengthen the collaborative participation of various subjects and corresponding practical guarantees in the specific teaching practice. This helps to form a system of Artificial Intelligence ethics education throughout the whole process, which in turn improves students' Artificial Intelligence ethics literacy.

**Keywords:** Artificial Intelligence, Ethics education; Professional courses, Goal progression, Trait Changes, Practice path.

## I. INTRODUCTION

Nowadays, the rapid development of artificial intelligence is popularized and has revolutionized human production and life. However, accordingly, the ethical issues involved in Artificial Intelligence have gradually aroused widespread concern in society[1], and many countries and organizations have successively put forward positive strategies to cope with the ethical risks of Artificial Intelligence, such as the United States, Japan, and the European Union, which have successively promulgated relevant social principles or ethical guidelines. After artificial intelligence is applied to the field of education, with the gradual deepening of habitual dependence on the conclusions of artificial intelligence, both teachers and students are likely to fall into the situation of being restricted by artificial intelligence without realizing it, thus weakening their independent judgment as subjects. This requires the strengthening of moral education in the professional curriculum to build an intrinsically coherent relationship between the application of AI technology and the subject of education and educational activities, which is conducive to the strengthening of students' personalized learning experience and further enhance the effectiveness of learning[2].

Rodríguez and Bernardi demonstrated that applied ethics teaching in engineering research is a commitment to strengthening professional competence, ethical governance, and responsible research and innovation[3]. Weidener and Fischer also believe that in order to fully cultivate future medical professionals, it is urgent to incorporate the teaching of artificial intelligence and artificial intelligence ethics into medical courses[4]. Jeff and Daniel believes that attention should be paid to and solutions to the technical, philosophical, and ethical issues that artificial intelligence brings to future pharmacy and pharmaceutical education[5]. To identify potential concerns and limitations of AI educational applications, Busch and Adams et al. explored the biomedical ethical responsibilities of healthcare organizations when integrating AI applications into medical education[6]. Research in the field of tourism education has shown that tourism educators need to enhance their understanding of the destructive potential of ChatGPT and its impact on academic integrity and morality, and have proposed the necessity of developing guidelines for the ethical use of artificial intelligence in tourism education[7]. However, no matter what ethical education methods are applied, educators need to immediately adapt to the reality of students using this technology

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to write papers, complete exams, and various other assignments[8].For this reason, experts suggest considering the principle of algorithmic supervision to monitor, understand, and prevent the adverse effects of using artificial intelligence in education. In addition, it is necessary to identify all stakeholders and their joint participation and cooperation to ensure the ethical use of artificial intelligence in education[9].Kim et al. proposed that the accelerated development of artificial intelligence and its application in professions requires professional education to seriously incorporate artificial intelligence into the curriculum and enable graduates to use it ethically and responsibly in practice. This method must have three aspects: imparting basic algorithms and appropriate application knowledge of artificial intelligence, discussing its limitations/biases, and studying current and potential moral challenges in practice[10].Previous studies have shown that ethical education in artificial intelligence has become an important part of professional curriculum moral education.

Moral education is not only the goal of education, but also the ethics of education. On the one hand, it cultivates talents, on the other hand, it constructs social ethics and morals, and promotes the high integration of individuals, society and the country [11]. Nowadays, AI ethical education has become a key link for colleges and universities to practice the important mission of moral education. How to promote Artificial Intelligence ethics education and teaching more effectively is the key task at the current stage. Therefore, it is necessary to conduct in-depth analysis of the curriculum system, continuously optimize the teaching objectives of Artificial Intelligence ethics education, improve the teaching characteristics of Artificial Intelligence ethics education, promote the continuous improvement of teaching practice paths, and effectively do a good job of ethical education and professional courses in the same direction under the general pattern of education, so as to form a synergistic effect and comprehensively improve the effectiveness of education.

## II. GOAL PROGRESSION OF ETHICAL EDUCATION IN PROFESSIONAL COURSES

Wang Shuo et al. pointed out that the construction of Artificial Intelligence ethics education system should follow the system development concept, and there should be comprehensive development in education objectives, and multi-dimensional objectives should be set up, such as awareness and sense of responsibility, norms cognition and compliance, and ethical decision-making ability. Therefore, Artificial Intelligence ethics education has obvious purpose and relevance [12]. From the point of view of the law of talent cultivation, the goal of Artificial Intelligence ethics education should also follow the progression of knowledge and skills, but its goal progression should be set under the leadership of the Artificial Intelligence ethics education Professional Committee in conjunction with the talent cultivation system:

### A. *Artificial Intelligence Ethics Education Goal Planning Under the Leadership and Control of the Artificial Intelligence Ethics Education Committee*

Although Artificial Intelligence ethics education belongs to the scope of general studies or professional teaching and research departments in the talent cultivation course, it also needs to be consistent with the overall goal of human development of the university through top-down design in the goal planning. First of all, under the leadership of the school's professional committee on Artificial Intelligence ethics education, a unified guiding document on Artificial Intelligence ethics education should be determined through the coordination and organization of departments at all levels and through group efforts, so as to point out the direction for the specific planning of the objectives of Artificial Intelligence ethics education. In the course of practice, this part of the function is generally undertaken by the professional committee on Artificial Intelligence ethics education established by the school. Secondly, at the level of professional ethics, it is necessary to constitute a branch full-time institution (such as the sub-center for teaching and research of Artificial Intelligence ethics education) to carry out specific planning and designing of the Artificial Intelligence ethics education objectives of professional courses on the basis of the reform of talent cultivation course and pay attention to realizing the integration and articulation of the teaching objectives between courses at different levels. Again, when it comes to specific course levels, the grassroots organizations for ethics teaching should also maintain a high level of attention to how the talent cultivation course is implemented into the syllabus of each course. The graduation requirements of the cultivation course and the ethical education syllabus comparison system and the ethical education review system are used to guarantee the consistency, precision and effectiveness of ethical education and teaching at different levels of implementation. For example, the university has set up the Artificial Intelligence ethics education Committee at the university level to carry out the overall planning and framework construction of Artificial Intelligence ethics education, and the Artificial Intelligence ethics education Teaching and Research Center of each teaching unit and the Ethics Teaching Grassroots Organizations of each major to carry out the collaborative setting of Artificial

Intelligence ethics education objectives. Therefore, the planning of ethical education objectives in the curriculum must rely on organizations at all levels under the leadership of the Artificial Intelligence ethics education Committee to realize the whole process of control from the overall direction to the planning of sub-objectives in the curriculum.

*B. Design of Ethical Education Objectives for the Curriculum Under the Requirements of Personnel Training*

Artificial Intelligence ethics education must use certain means and methods to transform the ethical concepts generated on the basis of the state, society and class to the educated person, so that he or she has the ethical literacy to meet the requirements of society [13]. According to Bloom's classification, the goals of ethical education in the curriculum are categorized as affective goals in teaching. In the past, in the teaching of professional courses, the emotional goal itself was often more easily ignored due to the difficulty of measurement. Under the requirements of ethical education, this category of goals and the corresponding design of teaching content has become an integral component of the curriculum. Emotional goals can be distinguished into levels of concern, reaction, judgment, and comprehension. However, the division of these levels does not mean that the emotional objectives should be set according to the levels of general knowledge, professional foundation, professional courses and so on, from reaction to comprehension, but the same as the setting of knowledge and skill objectives, according to the curriculum in accordance with its own positioning and characteristics in personnel training, combined with the curriculum knowledge learning or skill development for emotional integration. For example, the ethical education goal of economics and management courses requires "guiding students to go deep into social practice, paying attention to real problems, and cultivating students' professional qualities of being able to help the people in the world, serving the people with honesty and integrity, and cultivating both morality and law". This requirement is to guide students to pay attention to real-life problems and analyze and judge them with the basic theories of economics and management, so as to realize the need to strengthen the knowledge construction of professional literacy; if it is an advanced course or a comprehensive practice teaching course, the objective of course Artificial Intelligence ethics education should be adjusted to guide students to apply the skills acquired in the course to put forward solutions to real-life problems, so as to strengthen the professional competence literacy. The objective of Artificial Intelligence ethics education should be adjusted to guide students to apply the skills acquired in the course to propose ideas or solutions to real-life problems, so as to strengthen professional competence. Therefore, in the design of the ethical education objectives of the curriculum, it should be made clear that the achievement of the ethical education objectives is also a process of continuous construction and reinforcement, in which the basis of construction is the ideological beliefs formed by the students, and the direction is the vocational competence attained by the students. Therefore, in the hierarchical progression of educational objectives, ideological beliefs should be used as the driving force to gradually guide students to apply the knowledge and skills internalized in general education courses and basic courses to pay attention to, understand, judge and feel the real problems, and further design educational objectives oriented to inquiry or innovative problem-solving in professional courses by making use of the focuses of different courses. From this, it can be seen that the progressive design of ethical education objectives must abide by two relationships: to satisfy the relationship of progression or supplementation between courses, and to satisfy the relationship of intra-curricular adaptation to the cultivation of knowledge and skills in the courses. The Goal progression of ethical education is shown in figure 1.

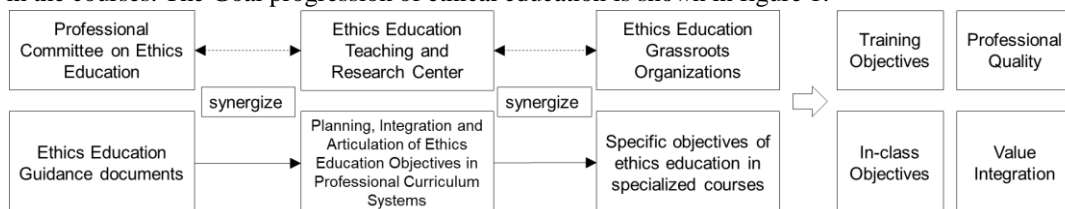


Figure :1 Goal Progression of Ethical Education in Professional Courses

III. CHANGES IN THE TRAITS OF ARTIFICIAL INTELLIGENCE ETHICS EDUCATION IN PROFESSIONAL COURSES

Artificial Intelligence ethics education in professional courses often exists as implicit education, and its impact has two sides, in which the positive elements contained in implicit education will have a positive effect on the formation of students' values, the cultivation of professionalism, the mastery of vocational skills, and the improvement of behavior. Artificial Intelligence ethics education should be closely centered on value shaping that Encourage students to pursue their moral development through inner ethical conflict and reflection [14]. However,

random, spontaneous and unsystematically designed implicit education can have an adverse effect on students' professionalism and ethics [15]. Existing literature suggests [16] that the combination of explicit and implicit in ethics courses is currently somewhat imbalanced, and how to achieve a more optimal balance needs to be further explored.

Explicit and implicit education belong to different forms and methods of education, and there are differences in effect and function. From ethics curriculum to Artificial Intelligence ethics education, the traits of education reflect the development of explicit to implicit and integration, and accordingly, ethical learning develops from self-confidence and self-reliance to self-awareness. In order to do a good job of integrating the explicit and implicit aspects of Artificial Intelligence ethics education, it is necessary to identify the trends in the changes in the traits of both teaching and learning, and make use of the momentum.

#### A. *From Explicit, Implicit to Integration*

Professional Artificial Intelligence ethics education courses are explicit courses, which are included in the school's teaching plan and are carried out in a purposeful, planned and organized manner, with the aim of explicitly teaching professional ethical ideology. Under the explicit educational status, Artificial Intelligence ethics education has a clear content structure, goaled teaching methods and teaching effect evaluation system. In contrast, the implicit education of non-professional ethics courses is composed of richer elements such as culture, occupation and professionalism, and the method is mainly integration and penetration, which lacks systematicity and standardization, and the result is also relatively uncontrollable. Integrated education, as an ideal state of obvious and hidden combination, requires the subject and object of education to stand on a relatively equal footing, effectively integrating values shaping and other teaching behaviors in the process of imparting knowledge and cultivating competence in the curriculum, perfecting the content, methods and evaluation system of Artificial Intelligence ethics education, and truly integrating Artificial Intelligence ethics education into the whole process of classroom teaching. From the construction of the "general (ethics)-professional" education system of the common teaching course, the ethical education traits of different stages of the curriculum clearly reflect the changes of explicit, implicit and integrated education. For example, public foundation courses or general education courses often take culture and basic professional qualities as ethical education elements, and combine them with the principles of general education to carry out implicit education; in the system of professional courses, courses such as Introduction to Professionalism and Professional Ethics are in the initial stage of professional personnel training, so the educational traits of ethical education are mainly dominated by explicit education, and the quality requirements and value orientation of professional talents are introduced through the large number of fusion of ethical elements; the core courses and module courses of professionalism are in the process of developing professional talents to achieve a better ethical education. In order to achieve a better effect of educating people, the core courses and module courses tend to be more integrated education, i.e., through the teaching design, the quality of human resources is closely combined with the application of professional knowledge and the exercise of professional ability in teaching and practicing activities, so as to lead the students to understand and internalize the ethical values and spiritual connotations embedded in the system of professional knowledge in-depth and then require students to strengthen their skills and have them reflected in their learning results.

#### B. *From Self-confidence, Self-awareness to Self-reliance*

The constructivist theory of education suggests that learning is a process that leads students to adjust and enrich their cognition by accumulating and interacting with new experiences from their previous experiences. The continuous implementation of ethical education in the curriculum system essentially maps this learning construction process. In the process of progression from basic courses to professional courses of study, the psychological growth process of students goes through various stages from self-confidence, self-awareness to self-reliance. Firstly, the inculcation of the general education courses enhances the students' humanistic, philosophical, scientific, aesthetic and practical qualities; secondly, the ethics courses strengthen the students' ethical awareness, which plays a role in the improvement of ideological and legal concepts, guides the students to enhance their personal self-confidence, and thus fosters the formation of a correct worldview, outlook on life and values; lastly, the theoretical and practical teaching of the professional courses integrates the knowledge, skills and values, which contributes to the students' conscious construction of their own self-reliance in their learning. Finally, the theoretical and practical teaching of professional courses integrates knowledge, skills and values, enabling students to consciously construct professional knowledge and skill systems in their learning and apply them to practical inquiry or innovation in a self-reliant manner. In the process of changing ethical teaching traits from self-confidence, self-awareness to self-reliance, the content focus, teaching methods and evaluation of learning effects of ethical

education in the courses should be adapted and designed. In the stage of professional basic courses or core courses, it should be integrated with the cultivation of professional basic literacy, with the construction of students' professional self-confidence as the leading role, and the alignment of personal self-confidence and professional self-confidence, so as to make the students realize that the significant achievements of their future professions are the results of the contribution of generations of professionals who are full of self-confidence. Subsequent professional courses and even graduation courses should use theoretical learning and skills application to continuously strengthen students' awareness of the value of the profession, so as to guide them to demonstrate their professional self-awareness and professional self-reliance through their learning achievements. In terms of teaching methods, there should be a transition from the professorial and experiential approach to the participatory and task-oriented approach, and clear criteria should be set for the evaluation of Artificial Intelligence ethics education and teaching, so as to ensure the continuity and consistency of ethics teaching. The Trait Changes diagram is shown in figure 2.

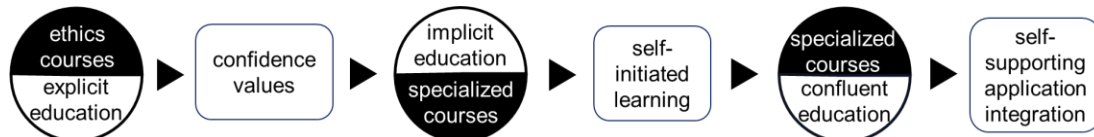


Figure 2: Trait Changes of Artificial Intelligence Ethics Education in Professional Courses

#### IV. PRACTICAL PATH OF ARTIFICIAL INTELLIGENCE ETHICS EDUCATION IN PROFESSIONAL COURSES

The professional curriculum is the basic carrier for the construction of Artificial Intelligence ethics education, which should be promoted in accordance with the characteristics of the profession. In the professional training course of colleges and universities, the professional curriculum is guided by the professional training objectives, and the planning, design and teaching practice are oriented by the requirements of knowledge, ability and quality. Accordingly, the construction and practice of ethical education must be in line with the requirements of the progression of teaching objectives of the curriculum system, and adapt to the change of educational traits of the curriculum from explicit, implicit to integrated. In this paper, we take the construction and teaching practice of ethical education in marketing as an example to illustrate the practical path of ethical education in professional courses.

##### A. Coherent Synergy in the Implementation of the Objectives of Curricular Artificial Intelligence Ethics Education

In order for the hierarchical and progressive goal design to be applied to teaching practice, it is necessary to realize the coherence and synergy in the implementation of the teaching goals of the curriculum. In terms of practical paths, emphasis should be placed on the mutual integration of the "surface" of the talent cultivation stage and the "line" of the cultivation process. On the basis of emphasizing that all professional courses must clearly define the teaching objectives of Artificial Intelligence ethics education, implementing methods at different stages of the training process should be strengthened to enhance the harmony between Artificial Intelligence ethics education and professionalism.

From the perspective of the "thread", the practice of Artificial Intelligence ethics education should emphasize the coherence of the various courses in the training process. Based on the sequence of courses under the same main line of knowledge or ability cultivation, we can fully analyze the leading and trailing relationship of each course. In addition to the gradual construction of specialized knowledge and the continuous upgrading of professional skills, the courses should also reflect the deepening process of value shaping advocated by the objectives of ethics teaching. For example, in specific modules of professional courses, with the help of differentiation in the depth of inquiry or intensity of innovation, different levels of knowledge and ability and values are integrated, and corresponding evaluation is provided to give feedback on the achievement of goals. From the perspective of "surface", the objectives of the courses in the same cultivation stage should not only meet the cultivation needs of the development of talents at that stage, but also realize the parallel synergy of the ethical education objectives between the courses to ensure the comprehensive development of talents. That is to say, different courses at the same stage of training should construct a rich variety of ethical education objectives, and at the same time pay attention to the differentiation, correlation and complementary between the objectives, so as to present the comprehensiveness of the implementation of teaching objectives in practice.

The concrete practice of forming deepened "lines" and diversified "surfaces" through the goals of Artificial Intelligence ethics education requires systematic and comprehensive planning. First of all, the organization and

construction of the "line" and "surface" must be based on the "outline" of the talent cultivation course in order to achieve the effect of the "outline" and "surface". After the teaching objectives are included in the graduation requirements in the talent cultivation course, each course in the course must clearly define the correlation and closeness between the graduation requirements related to ethics, so as to determine a clear ethical education direction for the design of each course syllabus and each teaching link afterwards. Secondly, different methods should be adopted to link the "line" and "surface" teaching objectives between courses. In the "line" linkage, the objectives of pre- and post-course Artificial Intelligence ethics education should be strengthened and integrated to clearly reflect the relationship with the course, so as to realize the vertical and in-depth linkage of certain core ethical elements. As for the ethical education objectives in the "surface" of the same level, we can rely more on the personalized needs and characteristics of the curriculum itself to seek for differentiated objective setting, and construct diversified and related ethical education objectives to achieve horizontal synergy. The third is to construct perfect teaching contents, methods and evaluation within the courses to ensure that the teaching objectives of each course fulfill the graduation requirements. Therefore, the ethical evaluation of each course must uphold the principle of combining hierarchical and categorical evaluation with process terminal evaluation. In terms of specific operation, the first step is for each course to set its own teaching goal system, and then make further adjustments through inter-course coordination to determine whether the higher-order goals of ethical education can be reached in a complementary manner; secondly, the intra-course ethical evaluation should construct evaluation standards covering the teaching process and learning outcomes, and integrate the goals and evaluations on the basis of enhancing the effectiveness of ethical teaching. Finally, the formed structure of ethical education goals and objectives needs to be continuously improved through practice and feedback. In recent years, the grass-roots organization of ethical education and teaching of marketing majors has taken such general education courses as innovation and entrepreneurship education as the starting point, focused on the current trend of digital marketing and other needs, and based on the subdivision of the future needs of marketing talents, through the allocation of ethical education resources, the development of the digital era, the digital economy and culture and the new concept of marketing have been combined with the concept of "line" and formed a "line" of ethical education. Through the allocation of ethical education resources, the development of the digital era, digital economy and culture, and the new concept of marketing are combined in a "line" way, and a vertical system of teaching objectives is formed to deepen the digital ethics, consumerism, professionalism in marketing, and corporate social responsibility layer by layer. The course has also expanded the "surface" of digital ethics, which is the most widely involved ethical education content in digital marketing: after introducing digital Artificial Intelligence ethics education in the introductory course, the course has set up digital ethics learning outcomes by means of extracurricular learning special tasks, so that students can learn digital ethics from different courses. After the introduction of digital Artificial Intelligence ethics education in the introductory course, the course has set up digital ethics learning outcomes by means of extracurricular learning tasks and other means, so that students can combine different courses with digital ethics and form diversified learning outcomes such as course essays, lab reports, case studies, and so on, thus enriching the horizontal coherence of the goals of professional ethical education.

#### *B. Instructional Design for the Adaptation of Ethical Pedagogical Traits to the Curriculum*

The organic combination of explicit and implicit ethical education is practiced not only in terms of goal progression, but also in-depth practice in terms of teaching content, methodology, and carriers in accordance with the characteristics of teaching traits ranging from explicit and implicit to integration and learning traits ranging from self-confidence and self-awareness to self-reliance:

The first is that the teaching content of Artificial Intelligence ethics education should be set or adjusted accordingly to changes in traits. The more explicit teaching of professional ethics cases and examples can be embedded in the introductory or basic courses of the profession, for example, with the help of some typical cases or examples of people in the professional field, to build up the confidence of students to engage in the professional work and to contribute to the future career. The relatively implicit discussion topics and verification process can be integrated into the professional courses, and practiced with experiential, participatory, and discussion-based teaching as the activity norm. The design of teaching activity themes and activity processes in professional courses is an important container for the implicit embedding of ethical elements. For example, students can internalize the ethical values in the process of discussion, participation and verification of specific topics, thus strengthening the sense of self-reliance formed in the process of learning knowledge and skills. Thirdly, the integration of ethical elements in the learning outcomes of professional courses requires students to strengthen the self-awareness of the application of values and professionalism in the process of learning outcomes through the application of bound

knowledge and skills and the output of values. Teachers need to learn how to facilitate work for case studies, improve their moral vocabulary, and critically reflect on a variety of moral and ethical issues related to the issues. Effective instruction should use science activities that do not conflict with students, or emphasize activities that focus on these beliefs but provide bridge activities that include them and science content[7]. For example, in the professional Artificial Intelligence ethics education of economics and management, the basic courses use cases of enterprises and entrepreneurs to complete the explicit introduction of Artificial Intelligence ethics education; the subsequent courses use the deconstruction of teaching themes of professional principles, techniques and tools involved in the cases to strengthen the implicit expression of Artificial Intelligence ethics education through the combination of teaching and practicing activities; and in the learning outcome requirements and evaluation of the advanced professional courses, students are motivated to take the initiative of integrating value thinking into the market, problem solving, marketing planning and innovation. In terms of the requirements and evaluation of the learning outcomes of the advanced courses, students are encouraged to actively integrate value thinking into the process of market inquiry and marketing planning innovation, so that the value underlying has always become an important component of the learning outcomes.

Secondly, teaching methods should be chosen to match the pedagogical traits. In the explicit education of ethics courses, the teaching methods are mainly lecturing, inspiring and discussing, while in the implicit education of Artificial Intelligence ethics education, the lecturing teaching methods are not suitable, and case-based, situational, experiential, anchoring, coaching and scaffolding teaching methods should be more preferred. By integrating relevant and controversial ethical issues in the classroom, the ethical conception of education in science education is to develop a sense of interdependence between ethics and science and society. As an explicitly targeted teaching strategy, this view of education does not exist independently of students' personal ethical beliefs. Knowledge and understanding of the interconnections between science, technology, society and the environment are essential for the development of scientific literacy [18]. Knowledge and understanding of the interconnections between science, technology, society and the environment are key components of developing scientific literacy. Case-based, situational and experiential teaching methods are better able to achieve subliminalization, thus playing a role in implicit educational traits; anchoring, coaching and scaffolding teaching methods are often adopted in integrated education because they are more helpful to the achievement of learning outcomes. For example, in the digital marketing course, the ethical education of the course combines the content of digital marketing cases, inquiry and innovation requirements with the blending of various teaching methods: firstly, the digital marketing cases of local enterprises are used as the content, and case deconstruction - live experience - problem inquiry - innovation coaching and so on are constructed. Problem exploration - innovation coaching and other course teaching links, i.e., applying case teaching methods to analyze the localized case, pointing out the knowledge contained in the case, and the conditions and constraints of the case to achieve the results of the case, etc.; secondly, using experiential methods to carry out field observation and research, to strengthen the internalization of the case knowledge and try to find out the problems; thirdly, using anchoring and coaching teaching to the course learning tasks based on the real-life experience. Thirdly, based on the real-life experience, anchoring and coaching are used in the learning tasks of the course, where the teacher and the students discuss the conditional basis of the task implementation and the solutions to the difficulties, and then combine with the scaffolding teaching methodology to frame the outline of the outcomes and continue coaching until the final learning outcomes are achieved. In this tutorial, the team applied multiple pedagogical approaches to facilitate the integration of the ethical elements of the teaching and learning process, which in turn facilitated a change in the students' learning traits.

The third is the integration of application carriers to promote Artificial Intelligence ethics education. The implicit educational characteristics of Artificial Intelligence ethics education require the support of teaching carriers. In the classroom, Artificial Intelligence ethics education is assisted by cases, teaching aids or education informatization system; in the practical teaching scene, the carriers are even richer, and people, objects, decorations, actions, dialogues and other elements of the scene can all be utilized as teaching carriers. Therefore, how to better explore and integrate ethical education carriers has become the key to teaching practice. For this reason, the marketing course of our university has constructed a four-dimensional spatial structure of ethical education with the reform idea of carrier integration, i.e., it is divided into the off-campus classroom, online course platform, off-campus scenario and online practical platform by the separation of on-campus, off-campus, online and off-campus, and is organically integrated and connected through teaching links. In the practice of digital marketing Artificial Intelligence ethics education, cases with ethical elements are implanted in the on-campus classroom and curriculum platform to provide ethical awareness guidance and learning drive; real-life experience and problem exploration make full use of off-campus on-line and off-line teaching scenarios, and the scenarios further catalyze the

integration of ethical education, thus forming a series of multiple ethical education scenarios. In addition, in the process of carrier integration and linkage, another key is to support the continuous improvement of teaching activities through goal-based design based on changes in educational traits. For example, the evaluation of learning outcomes in the basic digital marketing course sets up a link to verify and reflect on the outcomes in the teaching scenarios, so that the teaching effect of the carriers can be more effectively realized. A student should have some inclination or tendency to act in a certain way to critically evaluate a hypothesis in relation to the relevant evidence, which is not the same thing as the person having the ability to evaluate evidence or having the necessary propositional knowledge to do so[19].

### C. *Synergistic Construction of Ethical Education Models*

Ethical entry into the program contributes to the student's personal intellectual development, which in turn promotes personal cognition and basic literacy [20]. The goal of ethical education is to build a systematic and comprehensive education system, which requires each course to take on the responsibility of educating people and to form a synergistic effect to comprehensively improve the ability to cultivate talents. Accordingly, the practice of ethical education in the curriculum must also collaborate to construct an all-embracing, all-encompassing model of education, integrating teachers, courses and classrooms into the educational scene.

The mainstay of ethical parenting is the teaching staff. Only by creating a strong main force, the construction of the curriculum and classroom will have value. As the main force of ethical education, teachers of professional courses must not only have a sense of ethical education, but also form a unified professional ethical consensus to work together. First of all, at the team level, it is necessary to strengthen the integration of the participation of the whole team. The ethical education model emphasizes the consistent cognition of value leadership by the teacher team under the requirements of moral education, which means that the main line of ethical education should be determined through team teaching and research activities, discussion of parenting courses, and value discernment. This is inseparable from the active participation of professional teachers who cooperate with each other to reach the complementary and mutual integration of Artificial Intelligence ethics education in different courses. In addition, it is also necessary to rely on the Artificial Intelligence ethics education teaching grassroots organizations, the Artificial Intelligence ethics education committee and the professional construction committee and other forces to work together in order to sort out and optimize the Artificial Intelligence ethics education system in an all-embracing way. Secondly, at the individual level, we should pay attention to the comprehensive play of teachers' multiple roles. In addition to the role of classroom professors, professional teachers can also give full play to their roles in scientific research, social service and other fields, introduce a wider range of nurturing elements into the classroom, broaden students' perspectives on the world, and enhance the role of teacher role models in the curriculum. Thirdly, at the action level, teachers and students should also emphasize the mutual promotion of ethical education. Professional teachers can only strengthen the role of classroom guidance on the basis of a full understanding of the ideological and cognitive characteristics of students, and can flexibly use teaching methods to stimulate students to produce ethical emotional resonance. In order to improve the level of ethical education of teachers, the marketing teaching and research team of the school has carried out useful explorations at various levels, such as joint discussions on ethical education courses with the instructors of off-campus practice bases, subject specialists, and senior management of employing enterprises. In the classroom, teachers teach how to combine digital intelligence marketing to make suggestions for the epidemic, and guide students to diagnose or solve digital marketing ethics in future marketing scenarios based on marketing principles.

Similarly, in professional course ethical education, the synergistic construction should, on the one hand, recognize that each course should clearly occupy a different position in ethical education and play a role around the main line of talent cultivation; on the other hand, it should also be seen that teaching links outside the course, such as extracurricular credits and summer social practice, can also be developed and utilized as effective buffer zones for the continuation of ethical education between courses, so that ethical education can be extended to the whole process of talent cultivation. The whole process of cultivating talents. The process of construction starts from the value of professional education, examines the professional curriculum system from a global perspective, effectively coordinates the ethical education construction and practice with non-course teaching, and makes a good connection between theoretical teaching and practical teaching. For example, marketing majors in the curriculum system to build, in addition to the professional curriculum system to pay close attention to the digital marketing ethics of each course, but also for extracurricular credits, social practice of college students, inter-professional practical training and other links for the expansion of the link task, in order to guide the students to pay attention to the ethical education of the content mentioned in extracurricular activities, such as township sages and related



groups, the three rural digitization, the community of digital ethics, and so on, the use of practical teaching is used to build a good "channel" between the professional marketing courses and effectively enhance the synergy effect between the ethical education.

The synergy of classroom teaching and learning. The classroom is the strongest focus point of Artificial Intelligence ethics education, and it also covers a rich variety of Artificial Intelligence ethics education scenarios, such as teachers' teaching by words and example, case study inspiration, practical verification and exploration, and environmental cultivation and experience. From the perspective of system synergy, if we look at the classroom as a partitioned teaching space, each part of the classroom will not be able to produce a synergistic effect by only accomplishing its own corresponding teaching function. A more relevant perspective may be the synergistic working modules under the same goal, which collaborate to accomplish the educational tasks under the overall scheduling. In this perspective, modularized work disassembly and collaborative design for the classroom is particularly important. In terms of concrete realization, one type of relatively easy-to-realize synergistic approach is the "embedding method". This approach views the main line of nurturing as a chain, and then sets and configures the nurturing tasks to be undertaken by each classroom in each link of the chain, as well as the points of articulation with other classrooms. This method is more effective than each classroom's spontaneous and gradual integration, but it also requires stronger organizational support and flexible configuration arrangements. In the ethical education practice of the marketing course, for example, in response to the ethical education requirements of digital ethics, we firstly disassembled the components of science and technology ethics, business ethics, and social ethics involved in digital ethics, and then collaborated to set up the ethical education focuses that should be achieved in each classroom at the same stage. In order to achieve the goal of consistency in this theme, the course has carried out a reform of cross-classroom coursework teaching, i.e., to strengthen teachers' collaborative work between different classrooms by using the requirements of cross-classroom learning outcomes as a link, such as leading students to cross-classroom cross-thinking and integrating the ethical values to achieve the learning outcomes through the continuous advancement of a digital marketing plan. The Practical Path diagram is shown in figure 3.

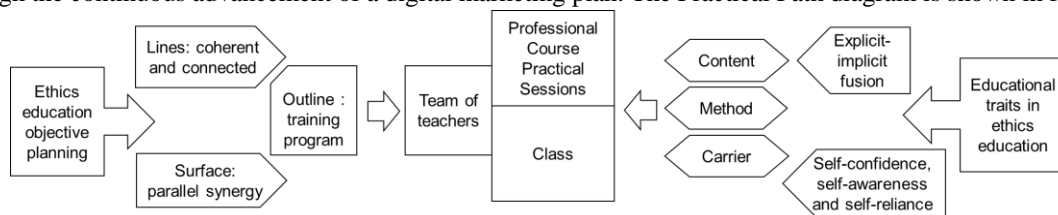


Figure 3: Practical Path of Artificial Intelligence Ethics Education in Professional Courses

### V. CONCLUSION

Artificial Intelligence ethics education is a complex systematic project that involves the overall situation of talent cultivation. Educational scholars need to take a broad view of ethics, i.e., what one should or should not do, in order to operationalize it as a research concept. In order to realize the goal of Artificial Intelligence ethics education, it is necessary to establish the links between the courses at various stages of training, so that each course can form a hierarchical, progressive, collaborative and supportive relationship, and to strengthen the collaborative participation of all kinds of subjects in the specific teaching practice after the relationship is established and to provide the corresponding practical guarantees.

For this reason, this paper puts forward the following suggestions for Artificial Intelligence ethics education in the curriculum: Firstly, the Artificial Intelligence ethics education Committee, as the command center of the Artificial Intelligence ethics education team, should continuously coordinate the relationship with the faculty. The committee should point out the way forward for the faculty and ensure the consistency of pace, and also provide practical help to improve the level of Artificial Intelligence ethics education of the faculty. Secondly, the committee will strengthen the connection between Artificial Intelligence ethics education courses and professional courses according to the main line of talent cultivation, and set up guiding principles and adjustment mechanisms to optimize and guarantee the formation of a synergistic relationship between Artificial Intelligence ethics education on the premise of comprehensively examining the ethics teaching and learning settings inside and outside the courses. The third is to control and drive the implementation of Artificial Intelligence ethics education in the classrooms of specialized courses through mechanisms such as supervision, evaluation and feedback, and to set up a special Artificial Intelligence ethics education supervision mechanism to ensure effective evaluation of the classrooms.

Artificial Intelligence ethics education will covers all scenarios of university education and profoundly embodies the essential requirement of establishing moral character in universities. The key to the success of the construction of Artificial Intelligence ethics education lies in the achievement of the effect of Artificial Intelligence ethics education. With the establishment of a progressive system of ethical education goals and the adaptation of educational traits, the role of ethical education in the cultivation of talents will be further strengthened, thus truly realizing the unity of educating people and talents.

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