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Analysis of Vocational Education Classification Examination Reform from the Perspective of Multiple Intelligences Theory

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Abstract: The classification examination for vocational education is an important exploration for the reform of vocational education college entrance examination, which is crucial for accelerating the establishment of the "vocational education college entrance examination" system. How to promote the reform of the classification examination for vocational education to facilitate the establishment of the vocational education college entrance examination system? Gardner's theory of multiple intelligences provides a new perspective and theoretical guidance. By analyzing the intrinsic logical mechanism between the theory of multiple intelligences and the classification examination for vocational education, a theoretical guidance framework is established based on four dimensions: examination objectives and requirements, examination question types and scores, examination scope and content, and recruitment and admission methods. Combining the ability characteristics and intelligence advantages of different types of examinee groups, and closely aligning with the job requirements of job groups, the implementation path of the classification examination reform for vocational education is deeply explored: taking multiple development as the logical starting point, clarifying examination requirements and objectives; taking multiple intelligences as an important fulcrum, setting examination question types and scores; taking multiple objects as the key considerations, designing examination scope and content; taking multiple evaluations as the focus of reform, optimizing recruitment and admission methods.

1. Introduction

Establishing the "Vocational Education College Entrance Examination" system is a significant decision and deployment made by the Party and the state to guide the reform of vocational education in the new era. As an important exploration and central orientation for establishing the "Vocational Education College Entrance Examination" system, the national level has promulgated a series of policy documents, including the "Vocational Education Quality Improvement and

Excellence Promotion Plan (2020—2023)", "Notice on Further Improving the Classification Examination Work of Higher Vocational Colleges", and "Opinions on Deepening the Reform of the Modern Vocational Education System Construction", to support and guide the reform of the vocational education classification examination, and to promote the establishment of a "Vocational Education College Entrance Examination" system that embodies the "national conditions and national characteristics".

With the continuous introduction of relevant national policies, "Vocational Education College Entrance Examination" and "Vocational Education Classification Examination" have become the core focus of academic and practical fields. In academia, scholars are focusing on the institutional and action logic, value orientation, implementation difficulties, and reform directions of the vocational education college entrance examination reform, as well as the necessity and feasibility of higher vocational education classification examinations, yet they have not paid attention to the guidance of the theory of multiple intelligences on vocational education college entrance examinations or vocational education classification examinations. In the practical field, provinces across the country have successively initiated comprehensive reforms of the college entrance examination. Provinces such as Shandong, Hunan, Jiangxi, and Fujian have formulated and promulgated plans for the classification examination of general undergraduate and higher vocational education [1]. The reform of vocational education college entrance examinations is gradually being carried out and deepened in the practice of local higher vocational colleges, but the pace of reform varies from province to province, and the reform measures and intensity also differ.

In summary, current research and practice on "Vocational Education College Entrance Examination" and "Vocational Education Classification Examination" have achieved certain results or effectiveness. However, there is a lack of research on how to achieve fairness in recruitment and examination for different student groups, and reform practices have not yet made new breakthroughs. This is due to the lack of scientific top-level design and theoretical guidance. The theory of multiple intelligences, which emphasizes the use of multiple evaluation methods based on eight types of individual intelligences, provides theoretical guidance for the reform of vocational education classification examination. The theory of multiple intelligences was proposed by the American educator Gardner, which advocates for the use of multiple evaluation methods to promote the diverse development of individuals. It has now been widely applied in the field of educational research and has certain implications and guiding roles for carrying out the reform of vocational education classification examination and for helping to establish the vocational education college entrance examination system[2].

2. The Logical Mechanism of Multiple Intelligences Theory and Vocational Education Classification Examination

The theory of multiple intelligences was first proposed by American educationalist Howard Gardner and has been continuously developed and refined in subsequent research[3]. This theory emphasizes that individuals possess eight types of intelligence, and the emergence of individual differences is due to varying combinations of these eight types of intelligence. A diverse evaluation approach should be adopted to promote the multifaceted development of individuals. Vocational education classification exams have been explored and practiced in the practical field, forming various examination and recruitment models such as "cultural literacy + technical subjects + vocational tendency ability", the integrated training examination and recruitment model for higher vocational and undergraduate education, the integrated training examination and recruitment model for higher vocational and undergraduate education, the "cultural literacy + vocational skills" examination and recruitment model, and the integrated training and transition examination and

recruitment model for secondary and higher vocational education. These classification examination and recruitment models cater to a diverse range of student types, including graduates of general high schools, graduates of secondary vocational schools, veterans, in-service workers, laid-off workers, new-type migrant workers, etc. They break down the barriers of traditional single-type student sources and provide opportunities for more types of individuals to pursue higher education, effectively promoting educational and social equity. In the face of complex and diverse student types, how should vocational education classification exams be conducted to ensure that the college entrance examination truly plays the role of a "guiding baton"? The theory of multiple intelligences provides solutions and theoretical guidance. Therefore, there is a certain intrinsic connection between the theory of multiple intelligences and vocational education classification exams, as detailed below.

2.1 The diverse development of individuals requires a balance between the commonality and individuality of examination goals and requirements

Firstly, the theory of multiple intelligences emphasizes that education should promote the development and growth of students' multiple intelligences, which is essentially the same as the quality education goal of "promoting students' comprehensive and harmonious development and diversified development" advocated and implemented in our country. Secondly, the original intention and purpose of implementing the vocational education college entrance examination reform and carrying out the classified examination for vocational education is to highlight the characteristics of vocational education types [4], to provide fair educational opportunities for a diverse range of student types, including graduates of secondary vocational schools, graduates of regular high schools, veterans, on-the-job workers, laid-off workers, and new-type migrant workers, and to promote the overall development and individual development of all students. Therefore, when designing the examination scheme, it is necessary to grasp the overall examination goals and requirements based on the common development of students, while also considering the intelligence types and intelligence advantages of different types of examinee groups, to determine differentiated examination requirements and goals for each type of examinee group, thus achieving the goal of unifying the common development and individual development of all students.

2.2 The diverse intelligence combination of individuals requires the scientific design of exam question types and score values

The theory of multiple intelligences posits that each individual possesses eight types of intelligence, and the differences between individuals are due to the varying combinations and levels of expression of these eight intelligences. However, each individual can leverage their unique strengths and become irreplaceable in specific domains. Therefore, there is no absolute distinction between "excellent" and "poor," or "good" and "bad," as each individual is a unique entity. In the context of vocational education classification examination reform, facing a diverse, complex, and special group of examinees, what types of questions should be designed, and how many points should each type of question be allocated to reflect the scientific and rational structure of the examination questions? This is a question that merits serious consideration by educational administration departments, enrollment examination departments, and examination question-setting departments. It is also a matter that deserves in-depth thought and suggestions from a broad range of educational professionals.

2.3 The diversity of individuals requires the pertinence and breadth of the examination scope and content settings

The theory of multiple intelligences is closely related to specific cognitive domains and knowledge areas, which leads to multiple considerations and choices in the content and scope of examinations. The intelligence of an individual is diverse, and the combination and extent of the expression of the eight types of intelligence determine the differences in the structure of individual intelligence, thus, the structure of individual intelligence is characterized by diversity and differentiation. The classification examination for vocational education has a diverse and complex group of candidates, which is reflected in two aspects: first, the candidates include graduates of general high schools, graduates of secondary vocational schools, as well as veterans, laid-off workers, new-type migrant workers, and other social personnel; second, there are significant differences among different types of candidates, with each type having different intelligence structures, levels of cultural foundation, growth environments, interests and abilities in learning, and motivations for learning. Therefore, it is worth considering whether it is scientifically reasonable and fair to use the same set of evaluation criteria for different types of candidates. In other words, can the same set of examination papers scientifically measure the true level of different types of candidates, and can vocational colleges admit the "desired" talents.

2.4 The diverse evaluation of individuals requires the diversification and integration of recruitment and admission methods

The theory of multiple intelligences contains individual equality in moral cognition and emphasizes the use of multiple evaluation methods to promote the diversified development of individuals. Promoting the diversified development of individuals is the concrete embodiment and measure of realizing educational equity and social equity. Admission is one of the most common ways to screen and select talents, which can provide a relevant objective standard for colleges and universities to measure and admit students. In the national college entrance examination, higher vocational education is generally used as a supplement to higher education, adopting the same examination paper unified examination and batch admission. The admission at the junior college level is relatively later than that at the undergraduate level. Students with good test scores are preferentially admitted to undergraduate colleges, while students with poor scores are admitted to higher vocational colleges. In the national general college entrance examination, higher vocational colleges admit students who are "selected" by the undergraduate level colleges. It can be seen that the traditional national college entrance examination divides students based on their theoretical scores. For the higher vocational education which takes the training of technical talents as the main line, it fails to reflect the diversity of individual development and the type attributes of vocational education, and there are obvious drawbacks in talent selection.

In summary, the theory of multiple intelligences provides theoretical guidance and problem-solving ideas for the classification examination of vocational education. The core essence of the classification examination for vocational education lies in "classification," determining the examination subjects and content based on the intelligence characteristics or advantages of different types of examinees, while closely aligning with the employment requirements of industry job clusters corresponding to different professional categories.

3. Analysis of the Ability Characteristics of Vocational Education Classification Examination Candidates

3.1 The diversity and complexity of groups

The reform and implementation of the vocational education classification examination aim to provide more opportunities for different types of students to receive higher education. The examination and enrollment objects present a diverse characteristic, covering graduates of general high schools, graduates of secondary vocational schools, veterans, laid-off workers, migrant workers, and high-quality farmers, as well as school graduates and social personnel. This breaks the singularity of traditional ordinary college entrance examination enrollment objects. Therefore, the objects faced by the vocational education classification examination are more diverse and complex.

3.2 The Plurality and Diversity of Intelligence

According to Gardner's theory of multiple intelligences, an individual's intelligence is both diverse and varied. Each person possesses the same eight types of intelligence, but the combination or pattern of these intelligences varies from person to person, displaying diversity and difference. Specifically, language teachers have a prominent advantage in linguistic intelligence, while math teachers have a clear edge in logical-mathematical intelligence. Whether it's a language teacher or a math teacher, they both possess the eight types of intelligence identified by Gardner, but the strength of each type of intelligence differs. Among the individuals targeted by vocational education classification exams, graduates of general high schools have a more pronounced advantage in linguistic intelligence, logical-mathematical intelligence, intrapersonal intelligence, and interpersonal communication intelligence. Graduates of secondary vocational schools and members of the public, on the other hand, have advantages in naturalistic intelligence and bodily-kinesthetic intelligence.

3.3 The mutual differences in learning characteristics and learning abilities

Learning is the relatively permanent change in psychological structures and their overt behaviors that individuals experience through experience, and it is the main activity and primary task of students in school. The characteristics of learning are the traits that students exhibit during learning activities, while learning ability is the individual psychological quality that constrains the ease or difficulty of the learning process. Therefore, different individuals or groups have different learning characteristics and abilities, and even exhibit mutual differences. Among the candidates for vocational education classification exams, ordinary high school graduates have stronger learning motivation and mainly aim to acquire knowledge and experience and improve themselves. At the same time, they are more proactive in their learning, have a higher interest in learning, and possess stronger theoretical learning ability, logical thinking ability, and spatial imagination; graduates of secondary vocational schools and social personnel mainly have external learning motivation, one of the typical manifestations of which is serving employment. At the same time, their self-control is weaker, their theoretical learning ability is weaker, they are not good at logical reasoning and spatial imagination, but they prefer practical training courses, and they have a clear advantage in practical ability.

3.4 The disparity in cultural foundations

The cultural foundation of an individual is gradually accumulated and formed through a long

period of learning and growth. Due to differences in educational environments and levels of education, there is a disparity in the cultural foundations of individuals. Different types of groups, such as general high school graduates, secondary vocational school graduates, and social personnel, have different educational environments and varying access to educational resources. Affected by external factors such as the educational environment and resources, the internal learning motivations of different types of groups vary, resulting in learning outcomes of different "levels." Specifically, students attending general high schools can access more abundant learning resources, and a good learning atmosphere can stimulate their internal learning motivation, thereby acquiring more cultural knowledge and promoting the development of personal introspective intelligence. On the other hand, students in secondary vocational schools may have insufficient educational and teaching resources and inadequate school spirit and academic atmosphere construction, leading to insufficient learning motivation and significantly reduced learning outcomes, which affects the accumulation of cultural knowledge and subsequent personal development.

In summary, vocational education classification examination enrollment objects exhibit characteristics of group diversity and complexity, intellectual plurality and difference, learning ability and learning characteristics heterogeneity, and cultural foundation disparity. Different types of examinee groups have different intellectual strengths and ability characteristics. Specifically, general high school graduates, who are in a better educational environment, have access to more resources and a better learning atmosphere, have stronger learning motivation, and their linguistic intelligence, logical-mathematical intelligence, personal introspective intelligence, and interpersonal communication intelligence have been better developed and cultivated, showing strong language expression ability, logical reasoning ability, abstract ability, and self-discipline. In contrast, secondary vocational school graduates and social personnel, due to the influence of family factors and social environments, may be "socialized" prematurely, have insufficient internal learning motivation, poor learning self-control, dislike for "big theories" and "long-winded discourses," are good at discovering new things, and prefer to solve problems with practical actions in a "simple and rough" manner, thus having obvious advantages in natural observation intelligence and kinesthetic intelligence (see Table 1 for details).

Table 1: Analysis of Abilities of Different Types of Test-Takers Based on Multiple Intelligences Theory

Candidate type	Competency advantage	Intelligent advantage
High school graduate	Language expression ability, logical reasoning ability, abstract ability, self-discipline ability	Linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, intrapersonal intelligence, interpersonal communication intelligence
Graduates of secondary vocational schools	Sensory ability, observational ability, practical ability	Kinesthetic intelligence, naturalistic intelligence, musical intelligence
Social personnel		

4. The Implementation Path of Applying Multiple Intelligences Theory to Vocational Education Classification Examination Reform

The fundamental goal of the reform in vocational education classification examinations is to scientifically select talents, truly leverage the "baton" role of the college entrance examination, and realize the talent cultivation and social service functions of vocational education. The equipment manufacturing industry is the heart of China's industry and the lifeline of the national economy,

while the equipment manufacturing category is the blood supply of talent for the equipment manufacturing industry. Electrical and electronic technology and skills are compulsory professional foundational courses for students in the equipment manufacturing category, possessing strong practicality. Their cultivation of students' application analysis ability, knowledge integration ability, and practical innovation ability is crucial[5]. Moreover, electrical and electronic technology is widely applied in various fields of production and life, an indispensable part of modern engineering equipment[6]. Therefore, taking the equipment manufacturing category as an example, selecting the course of electrical and electronic technology and skills, and deeply analyzing the implementation path of applying multiple intelligences theory to vocational education classification examinations, has certain theoretical significance and practical value.

4.1 Taking a diversified development as the logical starting point, clarify the examination requirements and objectives

Examination requirements and objectives run through the entire examination work, are the main line and important guidance of examination work, and are crucial to the effective, orderly and effective promotion of examination and enrollment work [7]. At the present stage, the provisions of examination requirements and objectives in the Examination Instructions of general college entrance examination subjects in various provinces (autonomous regions and municipalities directly under the Central Government) are mainly based on the comprehensive consideration of three dimensions: "knowledge and skills", "process and method", "emotional attitude and values" [8]. At the same time, document No. 36 of the Office of Teaching and Learning (2021) pointed out that the vocational education college entrance examination system of "cultural quality + vocational skills" should be further improved, and regular high schools and secondary vocational schools should be guided to provide diversified choices for students to exert their individual potential, so as to promote the all-round development of individual students and the development of all students [9]. Therefore, based on the experience of the general college entrance examination and the requirements of relevant national policy documents, following the type attributes of vocational education and reflecting the type characteristics of vocational education such as professionalism, sociality and practicality, the examination requirements and objectives of electrical and electronic technology and skills courses are rationally set from the three goal dimensions of knowledge and skills goals, professional quality goals and innovation ability goals. On this basis, combined with the ability characteristics or intelligence characteristics of different types of examinees, further refine the examination requirements and objectives of this course.

Firstly, to reflect the characteristics of vocational education, it is essential to closely align with the job requirements of positions, analyzing and summarizing the competency requirements of the modern equipment manufacturing industry job group corresponding to the equipment manufacturing category. Establish a corresponding relationship between these requirements and Gardner's theory of multiple intelligences, forming a table of competency requirements for the job group. The equipment manufacturing category primarily aims to cultivate technical and skilled personnel such as mechanical design engineering technicians for the modern equipment manufacturing industry, helping students to master a solid foundation of scientific and cultural knowledge and mechanical expertise. It also develops students' technical skills in troubleshooting, maintenance, and management standards, promoting the all-around development of students in moral, intellectual, physical, aesthetic, and labor aspects. From this, it is evident that to excel in the modern equipment manufacturing industry job group, one must possess a solid foundation of professional knowledge and strong technical skills. Further research reveals that the competency requirements for personnel in the modern equipment manufacturing industry job group can be

summarized into five aspects: technical skills, organizational ability, teamwork, safety management, and standardized management. These five aspects of competency requirements correspond to the eight types of intelligence in the multiple intelligences theory, and also to specific abilities. For example, organizational ability matches with linguistic intelligence and interpersonal communication intelligence, and the corresponding specific abilities include: possessing good planning, organizing, and coordination skills, being able to develop detailed plans and arrangements according to project timelines and budgets, and strictly executing them to ensure the project is completed on time and with quality.

Table 2: Modern Equipment Manufacturing Industry Job Group Personnel Capability Requirements

Position Group Employment Ability Requirements	**Specific Ability Analysis**	**Corresponding intelligent type**
1.nonsupport	1.1 The ability to learn new knowledge and new skills, as well as the capacity for innovation and entrepreneurship. 1.2 The ability to develop relevant industry standards, processing technological processes, and processing program codes. 1.3 The ability to install, debug, maintain, and improve equipment. 1.4 Mastering the operational skills of processing equipment and the ability to utilize related professional software. 1.5 Apply theoretical knowledge to practical production and the ability to provide technical services at the production site.	Kinesthetic intelligence, logical-mathematical intelligence, visual-spatial intelligence
2.Organizational capability	2.1 Possess good planning, organizational, and coordination abilities, able to formulate detailed plans and arrangements based on project schedules and budgets, and strictly enforce them to ensure the timely and quality completion of projects.	Linguistic intelligence, interpersonal communication intelligence
3.Teamwork ability	3.1 The ability to establish good unity and cooperation relationships with others, relying on the team to achieve complementary advantages, that is, having a strong team spirit and coordinated learning ability.	Musical intelligence, interpersonal communication intelligence, natural observation intelligence
4.Safety Management Capability	4.1 The ability to conduct quality inspections and safety production management, that is, during the equipment manufacturing process, it is necessary to strictly comply with relevant safety regulations, ensure workplace safety, improve work efficiency, and prevent accidents from occurring.	Naturalistic observational intelligence, introspective intelligence, kinesthetic intelligence
5.Standardized management capability	5.1 In the process of equipment manufacturing, follow relevant national and industry standards, develop and implement corresponding standard operating procedures to ensure the qualification rate and consistency of product quality.	Logical-mathematical intelligence, personal introspective intelligence

Secondly, taking the individual diversified development as the logical starting point, with the goal of promoting the acquisition of individual knowledge and skills, the formation of professional quality and innovation ability, based on the consideration and balance of commonalities and individualities among different types of examinee groups, and in combination with the job ability

requirements of modern equipment manufacturing industry positions (see Table 2), the examination requirements and objectives of electrical and electronic technology and skills courses are further refined to form Table 3. Specifically, on one hand, it is required that all types of examinee groups should achieve the three-dimensional goals of knowledge and skills, professional quality, and innovation ability. On the other hand, differentiated levels of the three-dimensional goals are set according to the ability characteristics and intelligence advantages of different types of examinee groups (see Table 2). For example, for ordinary high school graduates, considering their intelligence advantages in linguistic intelligence, logical-mathematical intelligence, visual-spatial intelligence, introspective intelligence, and interpersonal communication intelligence, but lacking the basic knowledge related to the equipment manufacturing category, the setting of the three-dimensional goals focuses on the levels of understanding and comprehension; while for graduates of secondary vocational schools and social personnel, with a higher level of development in kinesthetic intelligence and a certain basic knowledge related to the field, the setting of the three-dimensional goals focuses on the level of application. For instance, for the content of the basic electrical knowledge part, ordinary high school graduates only need to understand basic concepts such as current, voltage, potential, voltage source, current source, electromotive force, and circuits, and master the simple application of some formulas such as the partial circuit Ohm's law and the total circuit Ohm's law; graduates of secondary vocational schools and social personnel need to be able to draw circuit diagrams based on actual circuits or correctly connect actual circuits according to circuit diagrams on the basis of understanding the basic concepts.

Table 3: Requirements and Objectives for the Classification Examination of Electrical and Electronic Technology and Skills

	Knowledge and skill objectives	Professional Quality Objectives	Innovation Ability Objective	The main focus is on the type of intelligence being examined.
Regular high school graduates	1. Understand the basic concepts and fundamental theorems in electrical engineering and electronic technology. 2. Proficiently apply basic concepts and theorems of electrical engineering and electronic technology to analyze circuits and calculate related physical quantities. 3. Understand the basic electronic components in circuits, including their names, functions, working principles, and be able to correctly distinguish them. 4. Understand the role and common functions of software such as CAD, CAE, and CAM. Master methods for analyzing and troubleshooting electrical circuit faults.	1. Possessing good professional ethics, being familiar with and abiding by relevant institutional regulations and industry standards, being honest and trustworthy, and respecting others. 2. Possessing a strong awareness of safe operations and civilized production. 3. Possessing a strong sense of organizational concept and collective consciousness. 4. Possess strong dialectical thinking ability.	1. Cultivate a scientific attitude, be good at proposing different insights. 2. Possessing innovative capabilities, being able to solve some problems using new ideas and methods ("one problem, multiple solutions").	Linguistic intelligence, logical-mathematical intelligence, and intrapersonal intelligence.

Secondary vocational school graduates	1. Understand basic concepts and theorems in electrical engineering and electronic technology, and be able to perform some simple calculations of electrical circuit physical quantities. 2. Understanding some basic components in circuits, mastering their basic structural composition and operational principles, correctly selecting basic components to measure relevant physical quantities in circuits, and analyzing and troubleshooting circuit faults. 3. Familiar with and capable of using the common functions of CAD, CAE, CAM, and other related software.	1. Able to master and comply with relevant institutional regulations and industry standards, and obey work arrangements. 2. Possessing awareness of safe operations and civilized production, capable of conducting regular production. 3. Possessing organizational concepts and collective consciousness, collaborating with others to complete tasks and solve problems. **4.** Possessing general dialectical thinking ability.	1. Possessing a scientific and innovative consciousness, able to put forward one's own insights. 2. Possessing a certain level of innovative ability, one can use the knowledge learned to solve some problems in production and daily life.	Natural observation intelligence, kinesthetic intelligence
Social personnel				

4.2 With multiple intelligences as an important fulcrum, set the exam question types and scores

The format of exam questions is the medium through which exam content is presented, and the setting of question types and their respective scores reflects the emphasis of the exam content. Different question types have distinct testing functions; generally speaking, objective questions are suitable for testing students' mastery, understanding, and application of knowledge at various levels of educational objectives, while subjective questions are better suited for assessing students' abilities at higher levels such as analysis, synthesis, and evaluation [10]. Therefore, in accordance with Howard Gardner's theory of multiple intelligences and multiple evaluation perspectives, by considering the ability characteristics and intellectual strengths of different types of examinee groups, as well as the requirements and objectives of the exam, it is essential to select appropriate exam question types and assign scores reasonably to truly leverage the functions and roles of exam evaluation tools, thereby selecting truly "desired" talents for vocational colleges.

Specifically, based on common development, multiple-choice questions, fill-in-the-blank questions, and true/false questions are uniformly set; based on multiple intelligences and individual development, comprehensive questions with targeted and diverse characteristics are designed. Comprehensive questions are a type of integrated question format, tailored for different types of examinee groups, with sub-question types included. For instance, for graduates of general high schools who have stronger theoretical learning abilities and mathematical logic skills, the comprehensive questions include calculation and analysis questions; for graduates of secondary vocational schools and members of the public with stronger practical abilities, the comprehensive questions include circuit design and drawing questions. On the basis of determining the question types, different scores are assigned to the various question types for different exam papers (general

high school graduates use Paper A, while graduates of secondary vocational schools and the public use Paper B). Specific question types and their score settings are detailed in Table 4.

Table 4: Types of questions and scoring system for the Electrical and Electronic Technology and Skills Examination (100-point scale)

	Multiple choice question (Points per question)	**Fill-in-the-blank question (points/question)**	**Multiple-choice question (points per question)**	**Comprehensive question (points/question)**		**The main types of intelligence being examined**
A paper	20 points/10 questions	10 points/5 questions	10 points/10 questions	Mathematical problem 35 points/2 questions	Analysis question 25 points/1 questions	Logical Mathematical Intelligence
B paper	30 points/15 questions	5 points/5 questions	5 points/5 questions	Graphing question 30 points/2 questions	Circuit Design Question 30 points/1 questions	Kinesthetic Intelligence

4.3 Design the scope and content of the examination with multiple objects as the key considerations.

The design of the examination scope and content is the core of examination work, providing guidance for students to develop examination plans and learning schedules [11]. Any form of selective examination tends to give rise to exam-oriented education, and optimizing the examination scope and content is one of the effective means to currently mitigate the degree of exam-oriented education. Vocational education classification examination is an important method for vocational colleges to select students, and the design of the examination scope and content should be based on a new, higher, and broader perspective, minimizing the degree of exam-oriented education. At the same time, vocational education classification examination faces a diverse and complex group of applicants, and the design of the examination scope and content should also comprehensively consider the characteristics and needs of different types of examinee groups. Therefore, the examination scope and content of the electrical and electronic technology and skills courses should reflect the job requirements of modern equipment manufacturing industry positions, the ability characteristics and intellectual advantages of different types of examinee groups, and the three-dimensional examination requirements and objectives, making it more selective and targeted. This allows different types of examinee groups to develop different examination plans and learning schedules according to their own development needs during the early learning stages, acquire effective knowledge, and achieve a unity of commonality and individuality in education.

Specifically, the same wide, wide and deep test scope and content are designed for all types of examinee groups, including multiple content modules such as circuit basics, analog circuits, electrical basics and electric drag, electronic components and digital circuits. At the same time, for the examination content of the same module, the examination requirements and depth of different types of candidates are slightly different, so that candidates can make learning plans and learning plans according to their own development needs in the early learning stage. For instance, in the examination modules of electrical engineering fundamentals and electronic components, on the one hand, based on the cultivation of commonalities, the relevant basic concepts and fundamental theorems are examined for all candidates. On the other hand, based on individual development and diverse needs, for ordinary high school graduates, the main focus is on their understanding and

application of relevant basic concepts and fundamental theorems. For secondary vocational school graduates and social individuals, the main focus is on their knowledge of relevant basic concepts and fundamental theorems and their ability to perform simple calculations.

4.4 With multiple evaluation as the focus of reform, optimize the recruitment and admission methods

The entrance examination is essentially a way of talent evaluation and talent selection. Influenced by the traditional admission mode of college entrance examination, college entrance examination results are regarded as the main evaluation dimension and important reference basis for college enrollment. The theory of "only score" has been dominant for a long time, which affects educational fairness and scientific talent selection. To this end, in 2019, the national level clearly proposed to launch a comprehensive reform of the college entrance examination enrollment system, aiming to build a recruitment and enrollment mechanism of "classified examination, comprehensive evaluation, and diversified admission"; In 2020, the "Overall Plan for Deepening the reform of Educational Evaluation in the New Era" clearly wrote the "breaking the five only" into the document, emphasizing that we must resolutely overcome the stubborn problems of the "only score" theory. The introduction of relevant national policies provides policy guidance and support for the reform of admission examination, and Gardner's multiple intelligences theory provides theoretical basis and guidance. Gardner's multiple intelligence theory emphasizes the evaluation of individuals from multiple dimensions, breaking through the limitation of a single evaluation dimension. Therefore, the vocational education classification examination should focus on the reform of multiple evaluation, relying on the "two changes and one setting", and constantly optimize the recruitment and admission methods.

First of all, change the traditional admission concept based on theoretical examination results in the past, and gradually form a comprehensive evaluation admission method such as "theoretical examination results + technical examination results + professional quality". Secondly, the concept of "level" and "dwarfing" of level should be changed, so that the enrollment of higher vocational colleges and universities is independent of the enrollment of ordinary colleges and universities, and the enrollment and enrollment highlight the unique attributes of vocational education. Finally, different admission batches are set up according to the school type and major categories, and the corresponding score line is demarcated. At the same time, multiple admission modes such as independent enrollment and comprehensive evaluation enrollment are adopted, allowing candidates to register and volunteer according to the school type and major categories, so as to ensure the scientific and fair selection of talents.

5. Conclusions

Under the background of the reform of the vocational education college entrance examination, the classified examination of vocational education should break through the limitations of the traditional college entrance examination, reflect the type characteristics of vocational education, and highlight the due value of "baton". This requires us to pay attention to the deep connotation of "classification", rather than just staying in the "surface" understanding. "Classification" is a discourse field that controls differences, including school classification at the macro level, professional classification at the meso level, and object classification at the individual level. The reform of the classified examination of vocational education should not only pay attention to the differences of the types of institutions and major categories, but also pay more attention to the multiple intelligence and multiple development of individuals. Based on the multiple development, multiple intelligence, multiple objects and multiple evaluation, reform the examination

requirements and objectives, test types and scores, test scope and content, recruitment and admission methods, etc. This further makes "classification" an advantageous growth point for promoting the reform of vocational college entrance examination, achieving the scientificity and rationality of talent selection, and promoting educational equity and social equity.

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