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The Relationship Between Scientism and Curriculum Modernization in America

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Abstract: This paper examines the impact of scientism on the modernization of curriculum during the progressive era in America. Based on primary sources and secondary literature, this paper analyzes the performance of scientism as the core of curriculum modernization from five aspects: science and technology as the concern of reform, nationalism as the cloak of scientism, scientists as the initiator and host of education reform, subject structure as the core of reform, and scientific curriculum preparation. It argues that scientism played a significant role in establishing progressive education. It further influenced Americans' understanding of progress, democracy, and social reform and contributed to the emergence of a modern, scientific approach to politics and governance.

Keywords: curriculum modernization, scientism, the United States, the progressive era

1. Introduction

1.1. Background

Systematic reform can be analyzed from ideological, institutional, and other aspects. However, when considering the modernization of the American curriculum, at least two factors have led to ignorance or misinterpretation of the development of the value idea behind the reform. First, Americans were heavily criticized for progressive education before the Second World War, which makes it logical for them to return to the value orientation of progressive education after the war [1]. Consequently, many people only see the abandonment of the value concept of progressive education by "modernization" and ignore the connection of its intrinsic value. Second, the formation of the Cold War political atmosphere and the accidental touch of the satellite incident made the value concept and the internal driving force of "modernization" blurred and suspicious. Therefore, despite the historical facts of the reform, there was no systematic analysis and summary of people's interest in the understanding of institutional reform, the "value concept", and the historical development of the reform – the reform in the establishment of the value of the "modernity" of American education [2,3]. Misreading history will not affect history, but it will affect the future. Learning from the experience of other countries can proofread the direction of the new reform.

The progressive era in American history was marked by major social, political, and economic changes, and Scientology played a prominent role in shaping the thinking and policies of the time [3]. The research question for this paper is how scientism affected the American nation-building process during the progressive era. Previous research on scientism, progressivism, and American nation-

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building during the progressive era has been summarized and critically evaluated, highlighting the strengths and weaknesses of existing scholarship. However, there are still gaps in the literature that this paper will seek to address.

1.2. Research Methods

This study adopts a new perspective which can be explained from the following aspects. First, it places "curriculum modernization" in the history of the development of American education and seeks the unity of the "modernity" of American education from the historical context. Second, it analyzes "curriculum modernization" from the perspective of "value concept" and examines its inner driving force of modernity. Third, it puts "curriculum modernization" in the background of world modern education and sees the "modernity" of world education. Based on this, this study chooses to re-understand "curriculum modernization" in the United States from the perspective of value concept, seeking to clarify its core concept and internal driving force. It further places it in the overall framework of education development in the 20th century, thereby providing a perspective on the pulse law of modern American education [4,5].

Historical analysis is a major method in this study. As this study examines the history and reality of scientism in contemporary America, the time span is as long as half a century. During the past half century, profound changes have taken place in the political, economic, and social realities of the United States. Accordingly, the cases examined have also occurred have varied across these periods, and the manifestations of scientism in different periods are also different.

Case analysis is a major method of this study. Although Americans lack original theoretical contributions to scientism, they have abundant practices of scientism. From the point of view of the development of American science history after the founding of the country, it provides a wealth of cases for discussion. Case analysis is helpful to explore the possibility from "special" to "general" and from "micro" to "macro" based on historical and realistic experience. Studies based on a number of cases avoid the mistake of "holism" and are conducive to obtaining conclusions consistent with history and reality. However, the limit of the case study is also obvious. The case study in this paper cannot be directly extrapolated to the "miniature" of the evolution of contemporary American scientism, nor can it be directly extrapolated to the whole manifestation of contemporary scientism. It neither outlines the general history of the evolution of scientism in strict historical time order nor lists all the manifestations of scientism in the United States in detail. Instead, it tries to take several cases as the support, primary literature and research literature as the basis, and historical evolution as the clue. It presents the different features of scientism dynamically and multi-dimensionally.

2. The Concept of Scientism

The philosophy of scientism in education has been concentrated in the United States after World War II. The structuralism curriculum paradigm born in the "Teaching Content Modernization Movement" in the United States advocates for a discipline-centered curriculum and the basic spirit of scientism by reflecting the basic structure of disciplines in the curriculum [6]. The dominant curriculum paradigm, represented by Ralph Taylor, applies the basic spirits of behavioral science, such as goal management, task analysis, and behavior control, to curriculum development, and establishes the basic pattern of curriculum development, objectives model, which is the concretization of scientism spirit in the field of curriculum preparation [7].

In this study, scientism is not so much an idea, but rather an attitude, stance, and belief held by individuals or shared by social groups committed to science. This attitude elevates the research results and methods adopted by natural science into a diffuse sociocultural ideology and a standard starting point for solving problems. Scientism has been diluted to ideology or even subconscious instead of

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being stubbornly held as a belief, and embodied as a vague "worldview" and diffuse infiltration of "methodology". As a worldview, scientism constitutes the basic perspective or the first perspective from which people look at problems. As a methodology, scientism constitutes the basic tools and ways for people to solve problems. Therefore, although the definition of scientism in this paper is not divorced from the "worship of science", which is a biased stance and attitude towards science, it is no longer extreme in its belief or worship. Scientism has cognitive significance, consciousness (spiritual sustenance) significance, as well as economic significance to promote social development. All these complex and powerful functions guarantee that it satisfies people's cognitive purview (understanding the law of nature) and promotes social and economic development. Besides guaranteeing people's worldview and methodology, it also has a guaranteed meaning of attitude, position, belief, and spiritual security. The last meaning of spiritual security is not the main connotation of the "scientism" this paper emphasizes. This paper mainly uses the concept of "scientism" from the social consciousness level of "universalized diffuse scientific culture" and from the angle of generalization and diffusion, rather than strict "world outlook and methodology".

3. Relationship Between Scientism and Modernization

3.1. The Modernization of Curriculum

This paper discusses a curriculum with scientism as its core philosophy. The scientific curriculum represents many schools and curriculum propositions. Generally speaking, its connotation should include the following meanings: First, in terms of the purpose of the curriculum, it emphasizes the value and power of science itself. The curriculum should serve the development and progress of science and even when it comes to the significance of the curriculum for individuals and society, it should be viewed in terms of their dependence on science or the great influence of science on the two. Second, in terms of curriculum content, science should be advocated and promoted. The status of various scientific knowledge in the school education curriculum system should be emphasized, and the content of natural science should be continuously increased to timely absorb the new achievements of scientific development. Third, in the course of curriculum implementation, the method and form should be equally scientific and efficient. Even when considering the interests, hobbies, and differences of individual learners, the focus should be on obtaining better learning results, rather than catering solely to the needs of individual learner development.

From the perspective of pursuing intrinsic value pursuit, progressive education was not the proper educational state in the first half of the 20th century with the rapid development of science and technology. The development of science and technology entered social life at an unprecedented speed, changing the basic outlook of social life. Additionally, unlike the first scientific and technological revolution in the 18th century, the further development of science and technology, cannot rely on experience but required rational development, i.e., a high level of education. Therefore, progressive education, which mainly aimed to solve the social problems brought by "scientific and technological development", became the object of reform when it encountered a new round of scientific and technological revolution after running for half a century.

It must be explained here that progressive education is also a revolution. According to progressive educators, they established "traditional education" with "three centers" as the object of their revolution, and they aimed to move away from teacher-centered, classroom-centered, and book-centered learning [8]. However, progressive education was indifferent to scientific and technological progress and did not actively reflect the requirements of "science education" put forward by scientific and technological progress [9]. In terms of the relationship between the world of life and the world of science, progressive education was more inclined to the "world of life" [10]. If anything, it provided a contemporary answer to "how to teach" and "how to learn." "Learning by doing" indeed

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represented the character of progressive education and partly met the requirements of science and technology development on the "practical" aspect of human scientific quality [11,12]. However, when progressivism became the object of revolution, its incomprehensiveness in responding to the requirements of scientific and technological revolution was undoubtedly exposed. The scientific and technological revolution needed an answer to the most fundamental question "What knowledge is most valuable", which Spencer had already answered.

Furthermore, progressive education originally stood on the stage of American education as revolutionary, only to become the object of revolution half a century later. This was not because of the "Soviet satellite" or the "East-West Cold War" but because of the internal logic of progressivism itself. The contradiction of progressivism itself determines that in the face of the development requirements of the scientific and technological revolution, the development needs of the American society, and the contradictory movement of American education itself, a "modernization" of progressive education (thought and practice) was inevitable. The first Sputnik merely provided a better entry point for this movement.

3.2. Scientism as the Core Driving Force

Up to now, there has been a great deal of neglect of the drive of technological development to "modernize the curriculum", and the main reason for this neglect is the "fog" of international politics. Would modernization of the American curriculum have been delayed or canceled if the Soviet Union had not sent Sputnik in the 1950s? The answer is no because the core driving force of curriculum modernization had long been condensed and could not be cancelled, i.e., the reality of the scientific and technological revolution and the need for scientific and technological development [11]. Americans, who held pragmatic ideas and experienced two technological revolutions, had long planted the seeds of scientism in their minds. In particular, the United States was the main beneficiary of the second scientific and technological revolution, which transformed it from a backward agrarian country into the world's largest power.

Since the end of the 19th century, the shadow of "scientism" can be found behind every educational revolution and every major educational event in the United States [13]. Before the middle of the 19th century, the United States was a laggard economy compared with Europe and a consumer of the fruits of the "scientific and technological revolution." From 1860 to 1890, driven by the second scientific and technological Revolution, the United States increased its Gross National Product by nine times through active industrial technological transformation and assimilation of scientific and technological achievements. By 1880, it was the second-largest economy in the Western world; by 1890, it was the largest in the world. In 1900, Americans overtook Europeans in per capita income and became the new rich of the world economy. Since then, American science and technology consciousness has had the most solid structure in their minds, and they have never slackened their attention to science and technology and its development trend [14,15].

In the 1940s and 1950s, the third scientific and technological revolution, marked by the wide application of electronic technology, first took place in the United States. Thus, human beings began the "electronic age" characterized by the automation of production. After that, the scientific and technological revolution of human society was characterized by the creation of nuclear industry technology, space technology, new energy technology, new material technology, Marine technology, life science, and information technology, among which the extensive application of information technology was the most revolutionary and groundbreaking. This technological foundation has completely changed the way people have been producing for thousands of years and changed the way people live. Education, a social activity lasting for thousands of years, has to face the fate of change. That fate is determined by technology, not by international competition or satellites.

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4. Conclusion

Scientism is promoted by the will of the state, which strengthens the power of scientism and expands its influence. On the other hand, just because it is the will of the state to promote and realize the core concept of scientism, it is clear that the meaning behind the pursuit of individual rights has long been beyond the connotation of individual rights. In addition, it should also be noted that although scientism itself is naturally connected with the level of "society" and "state", the pure will of the state cannot fundamentally guarantee the realization of scientism propositions. After all, scientism propositions at the level of state or society need to be expressed through the value choice and value orientation of groups. This is especially true in an individualistic, self-fulfilling culture like the United States. Social mobilization in the name of the state can promote reform at a high speed for a while. In the face of a "national crisis", such social mobilization is more powerful. However, it is a misunderstanding of the "personality" culture of the United States to assume that such enthusiasm for reform aroused by social mobilization can last for a long time. In a country like the United States, where pragmatism and utilitarianism dominate the cultural status, the "national significance" of individual behavior is linked with the consideration of "personal value", at least not far away. Therefore, the so-called "crisis" in the sense of "international competition" cannot fundamentally drive individuals' behavior choices in the process of reform. In order to excavate individuals' inner consciousness of reform, it is necessary to coordinate the "value orientation" at the national and social level with that at the individual level. This is the main background and reason why the curriculum reform of basic education in the United States began to emphasize the significance of reform to individual life after the 1980s.

In the historical event of the modernization of the American curriculum in the study of American science, there are at least two factors that cause people to overlook or misread the development of values behind the reform. First of all, Americans' progressive education was widely criticized before World War II, which makes it logical for Americans to return to the value orientation of progressive education after World War II. Therefore, many people only see the abandonment of the value concept of progressive education by "modernization", but ignore the connection of its intrinsic value. Second, the formation of the Cold War political atmosphere and the accidental touch of the satellite incident made the values and internal motivation of "modernization" blurred and suspicious.

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