Literature, History and Philosophy
ISSN Print: 3079-5400
ISSN Online: 3079-5419
https://doi.org/10.63313/LHP.8060

Reshaping "Nature": Conceptual Evolution of the Natural World in Early Modern Chinese Elementary Education

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How to cite this paper: Wu, N. (2026). Reshaping "Nature": Conceptual Evolution of the Natural World in Early Modern Chinese Elementary Education. Literature, History and Philosophy, 2(3), 46–51. ISSN Print: 3079-5400, ISSN Online: 3079-5419. https://doi.org/10.63313/LHP.8060
Published: 2026-09-16

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Abstract

The early 20th century saw significant transformations in China. The Qing dynasty was over by 1911 and the Republic of China was formed in 1912. This, in turn, led to new educational, scientific, industrial, linguistic, and civic ideals and institutions. To make China a strong nation, it was necessary to modernize education, believed Chinese reformers. The elementary schools were particularly significant as they influenced the idea of society and the world that the children had. The biggest difference was in the definition of "nature", ziran. In the traditional Chinese worldview, human life and the natural world were often seen as interconnected and part of a larger unified system. Today, however, in school, nature could be seen, classified, explained and related to daily life. This study uses intellectual history and historical discourse analysis to examine this change. It employs literature on Chinese education from 1915 to 1932 in both Chinese and English. It states that Republican elementary education was not merely a transfer of the Chinese tradition to Western science. Instead, it changed the way children learned to value nature by means of observation, classification, investigation and in-depth scientific knowledge.

Keywords

Nature; Ziran; Chinese Elementary Education; Republican Elementary Education; Observation; Natural Science

1. Introduction

Sources for this study are also primarily in the English language and must be read carefully, as each source has its limitations. The views expressed in this paper were, in part, those of the author to an audience of English speakers who were mostly academic and, in part, those of the Chinese Educational Commission, whose mandate was to represent the interests of Christian education, and in part, those of the League of Nations report, which was written by international experts. These documents do not reflect the views of all Chinese schools and students. But their evidence is substantiated by the later historical work of Tu and Liu and Chu. All of these sources, for instance, state that knowledge through observation, hands-on

experience, organized school subjects, and environmental study is growing in importance. Overall, they represent a clear shift in the presentation of the natural world to Chinese children through formal education.

2. Traditional Chinese Understandings of Nature

2.1. Interconnected Nature in Laozi and Zhuangzi

In traditional Chinese thought nature was not treated as a mere object that was distinct and separate from the human, but as part of a greater whole within which human beings were themselves contained. In early Chinese philosophy, the word ziran was often used to mean 'self-so' or 'spontaneous' or 'following its own way'. An important example is given in the Dao De Jing. In Chapter 25, Laozi says that humans follow the earth, earth follows heaven, heaven follows the Dao and the Dao follows ziran. This passage does not isolate humans from nature but places humans within a larger order that encompasses both. For instance, earth and humanity are seen as interconnected components of the same process.

In the same vein, the Zhuangzi also places humans as part of the natural flux. Heaven, Earth, and the transformation of things are discussed together with human action in Chapter 12, "Heaven and Earth." The text urges us to accept change and to live in the midst of change, instead of taking control of the natural world. For instance, in Zhuangzi, the natural transformation is presented as a normal condition of all things, and humans are asked to accept it rather than resist (Zhuangzi).

The traditional understanding of nature, therefore, was drastically different from the natural science introduced into Chinese schools after the educational reforms following the establishment of the Republic of China, which constituted nature as an object of systematic observation and measurement. The comparison illustrates how the interaction between humans and nature was shaped by modern education, which introduced a new definition of the human position in nature.

2.2. Wang Chong and Rational Explanations

It is noteworthy that the school science in the Republican period did not simply replace pantheism with reason, since critical rationality had its own roots in the Chinese tradition. Wang Chong, a philosopher of the Eastern Han dynasty, cast doubt on the doctrine that Heaven acts purposively and produces things for the sake of human beings. In the Lunheng, he pointed out that things come into being spontaneously (ziran 自然), and Heaven has neither intention nor concern for human ends. For example, grain did not have to be understood as something intentionally created by Heaven to feed human beings. Indeed, his argument demonstrates that the Chinese thinkers were not the first to discuss the issue of the natural cause and intention before modernity. What changed in the Republican period, therefore, was not that rational explanations of nature appeared for the first time, but that such explanations became a routine part of the school curriculum for

those children who passed through the new institutions.

3. Educational Reform and Nature Study

3.1. Late Qing Reforms and Natural History

Modern educational reforms began to make that change possible during the final years of the Qing dynasty. In the reforms of 1904, natural history (or bowu) was added to the school curriculum. Anran Tu describes how natural history teaching introduced textbooks, specimens, models, charts and illustrations to produce new representations of nature (Tu 115-18). The students were to study things in a physical form rather than memorise classical Confucian texts. For instance, students could be given a plant or animal or mineral and shown its visible characteristics and have to identify it. In this approach, the purpose of education was transformed. Knowledge was no longer to be received from authoritative classical texts. The student was expected to see evidence and to draw conclusions from observation.

3.2. Republican Education and Practical Knowledge

This trend was continued in the new Republican school system, which placed more emphasis on observation and practical knowledge in education. These changes are reflected in the English translation of Ping Wen Kuo's The Chinese System of Public Education from 1915. Kuo explained that nature study is a part of the new curriculum, along with other areas like geography and mathematics (Kuo 127-29). He also condemned the education based primarily on memorization and advocated for more observation and practical training in natural science (Kuo 167). For instance, the students had to compare items and phenomena rather than just recall facts from textbooks. The change was important because it changed what the definition of reliable knowledge was. It was more of a scientific approach to the world, as learning was increasingly through seeing, comparing, and doing, which led to a more scientific approach to learning.

3.3. Science, Nature, and General Knowledge

In the Republican period, nature also found a more definite place, as an independent discipline of elementary knowledge, through curriculum adjustments. Bing Liu and Huiling Chu describe how the 1912 school regulations introduced science as a subject into senior elementary schools and required children to learn about nature, natural phenomena and relationships within the natural world (Liu and Chu 3). The curriculum also encouraged children to link this learning to their everyday lives and to become good observers. A student might reflect on an event in nature, and explain how it connects to something that happens at home or in the community. This was a way of distinguishing nature study from such subjects as morality teaching and classic literature, the principles and objectives of which were to provide nature with its own means and ends. Nature lost its aura and was made

open to investigation through observation of physical evidence.

The arrangement of the curriculum reflects the changes in the way that knowledge was itself being organized in the republic. Liu and Chu provide an explanation for the inclusion of the subject Nature in the curriculum for the 1924 school year, when it was taught along with Chinese, arithmetic, health, society, technical arts, music, and physical education (Liu and Chu 3). Later, educators tried to integrate Nature, Society and Health into a more comprehensive topic known as Changshi or "general knowledge." As early as 1932 it was possible to teach these subjects side by side in accordance with official standards (Liu and Chu 4). Children might, for instance, be given information on physical environment and learn at the same time about health and community life. This arrangement reflects a growing sense of nature as a "useful knowledge" that relates to "real life" rather than being merely part of a moral or cosmic scheme.

4. Local Environment, Observation, and Classification

The local environment became one of the most significant sources of evidence in this new approach to education. In 1922, Christian Education in China, by the Chinese Educational Commission, mentioned nature study and agriculture as vital components of education. It was reported that opportunities would exist to use for teaching purposes the soil, vegetation, animals, climate, farm operations, and life within the community (Chinese Educational Commission). For instance, a rural child might learn something about the soil or about the crops that are found in the local area, rather than just what is described in a book or far from home. Learning about local surroundings was a way to relate the school to the real world. It had an effect on the very nature of everyday things by turning them into the subjects of regular scientific inquiries.

Observation also helped students to classify and compare the natural world. Learning from local surroundings could make education more practical and more closely connected to everyday life, according to the Chinese Educational Commission. Similarly, Tu demonstrates how specimens, drawings, charts, and models helped to train children to observe differences between natural objects (Tu 115-18). For instance, an insect or plant can be picked up, studied in detail, compared with another insect or plant and put in a category. In this learning, children were made to understand that the natural world could be categorized based on experience. Nature thus became a territory which could be described and classified by evidence, as opposed to an area that could only be understood through inherited moral or cultural meanings.

5. Nature, National Development, and Scientific Education

The redefinition of the relationship between humans and nature was also gradually related to China's self-strengthening movement. In 1932, a mission of the League of

Nations published The Reorganisation of Education in China, which analyzed Chinese education and recommended greater organization, better teacher training, and better integration of education and Chinese social conditions (League of Nations Mission). For instance, schools were to be expected to prepare their students to face real social and economic issues rather than be insulated from the real world. This broader objective increased the significance of science, health, geography, and agriculture. An understanding of local landscape, weather, plants and soil might help with agriculture, health and community development. Nature was thus not only to be understood but also knowledge which could contribute towards economic development.

However, what scientific education gave to children was not a way to dominate or devour nature. While the 1912 science curriculum was designed to help cultivate an observation ability, it was designed to inspire an appreciation of nature (Liu and Chu, 3). A child might be taught to care for living things and study the physical characteristics of a plant, for instance. This evidence holds value as it shows one could appreciate nature and observe it without fear of destroying it. The transition to modernity was thus not as linear as one might imagine from harmony to control. The biggest change that was evident was the process in which learning took place. Even as nature came to be presented as intelligible through systematic observation, education retained an affective and moral dimension

6. Continuity Between Traditional and Modern Understandings

The process was incomplete in that the traditional ways of understanding nature persisted in Chinese society outside the classroom. During the Republican period, the values of Confucianism, the teachings of Laozi, traditional medicine, religious beliefs, agricultural traditions, and other local customs continued to shape everyday understandings of the natural world. A child might thus have varying experiences of nature at home and at school. A child might observe household practices regarding the weather or well-being, and be required at school to examine the same phenomena by modern methods. We see here that tradition had not vanished with modernization. Rather, science education produced a new powerful mode of knowledge about nature that co-existed with the older modes of knowledge.

7. Conclusion

To sum up, the evolving concept of nature in the early twentieth-century Chinese elementary education was a significant part of China's modernization. The Dao De Jing and Zhuangzi had brought humans into a greater dynamic order of transformation, while Wang Chong demonstrated the rationality within the traditional Chinese thought about natural causes and intention. What the introduction of school science altered was not the availability of rational explanation but the institutional form in which knowledge of nature was produced, structured

and delivered. Natural history and science were introduced as regular obligatory subjects in school and children were urged to observe, compare, classify and link natural phenomena with everyday life. Nature became something that could be studied in a structured and organized way, and yet be related to life, and to national development. The ideals of the past remained, but a scientific explanation for concepts became more dominant in the teaching practice. Thus, Republican elementary education redefined the mental bond between children and nature, and contributed to the development of a new scientific perspective of nature in China.

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