International Journal of Asian Social Science Research; Vol.2, No.3; 2025
E-ISSN: 3006-2179 P-ISSN：3006-754X
DOI: https://doi.org/10.70267/ijassr.250203.1829
Published by: Zeus Press

# The Twenty-Four Solar Terms: History, Significance, and Modern Relevance

**Yiheng Lin***

*Li Po Chun United World College of Hong Kong, Hong Kong*

**Corresponding author: Yiheng Lin.*

## Abstract

The “Twenty-Four Solar Terms” is a knowledge system and social practice developed by the ancient Chinese through the observing the periodic movement of the sun. By studying seasonal changes, climate patterns, and natural phenomena, they created a system that guided agricultural production and daily life (Xu, 2017). This system reflect the philosophy of harmony between humans and the natural world, which plays an significant role in the global society. This paper explores the history, features, and modern applications of the Solar Terms, as well as strategies for their revival..

**Keywords**

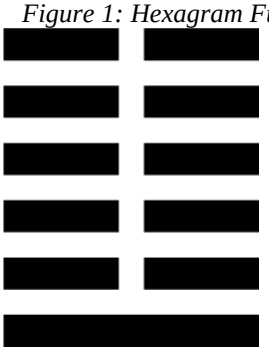
solar terms, Chinese culture, teenager, Chinese history, sustainability, climate change

## 1. Development and Features of the Twenty-Four Solar Terms

The Twenty-Four Solar Terms accurately reflect the Earth's relative position to the Sun, including its position on the ecliptic. However, the Solar Term is not solely based on solar movements; they also account for lunar phases, temperature variations, and astronamical phenomena of the tropical year (New Agriculture). Based on the relative positions between the Sun and the Earth, and the changing lunar phase, ancient Chinese scholars divided the year into Twenty-Four Solar Terms, each lasting approximately 14-16 days (Shen, 2001). This resulted in a lunisolar calendar unique to Chinese civilization, integrating elements of both lunar and solar calendars (Editorial, 1985).

As discussed above, the Solar Terms illustrate the ancient Chinese people's understanding of natural laws and phenomena, influencing early Chinese philosophy and mysticism. *The Book of Changes* from the Zhou Dynasty (1046 - 256 BCE) is a prime example. The author believes that this text was profoundly influenced by the Solar Terms, offering a rationalization and reinterpretation of natural philosophy. *The Book of Changes* consists of 64 hexagrams and 384 lines, constructed from the *yang* (—) and *yin* (- -) symbols. These hexagrams represents the dynamic relationship between *yin* and *yang*, symbolizing the gradual transition of natural forces over time (Liu, 2017). Every two solar terms correspond to a hexagram, reflecting the cyclical changes in *yin* and *yang* energies throughout a year, which can be understood in terms of solar radiation intensity. For instance, the hexagram “Fu” is associated with the Winter Solstice, marking the gradual strengthening of *yang* energy (Huang, 2024).

*Figure 1: Hexagram Fu*



Specifically, the winter solstice is the turning point in the Sun's apparent movement. It marks the shortest day and the longest night of the year, representing the peak of *yin* energy and the beginning of *yang* energy's resurgence. The "Fu" hexagram, with one *yang* line at the bottom and five *yin* lines above, embodies this transition, illustrating how yang energy, though initially weak, gradually increases in accordance with natural cycles. From the above cases, we can clearly see the ancient Chinese's understanding of natural philosophy and natural laws, that is, everything is constantly changing and repeating itself. The solar terms are a summary of following this law. Living and making production decisions according to the laws of nature can also be considered one of the underlying logics of the solar terms. It also influenced later books like *the Book of Changes* that use mysticism as the external present and philosophy as the internal.

## 2. Formation and Evolution of the Twenty-Four Solar Terms

The formation and development of the Twenty-Four Solar Terms was a gradual process. In early civilizations, the Sun played a decisive role in agriculture and celendar-making. Almost all ancient cultures recognized its importance, but the specific structure of the Solar Terms is unique to China (Xu, 2017). The exact origins of the system remain debated among the academic field. According to Shen (2001), the Shang Dynasty (1600 - 1046 BCE) was the earliest dynasty with verifiable written records related to calendar adjustments. The Shang people used leap months to reconcile differences between the lunar and solar cycles. Excavations at Yinxu suggest that the Shang understood solar patterns, with tombs and palace foundations aligning with cardinal directions.

Similarly, the research on the Tomb No. 45 in Xishuipo, Puyang, Henan, further evidence. The tomb's layout corresponds to the Sun's movement on the equinox and Winter Solstice, suggesting that by the Shang Dynasty, people had already identified these critical seasonal markers (Liu, 2020; Shen, 2001). The Zhou Dynasty (1046 - 256 BCE) later institutionalized the Solar Terms, as indicated in ancient texts like *Shangshu* and *Rites of Zhou*. By this period, the four main seasonal divisions - Spring, Summer, Autumn, and Winter - were established. Later records from *Zuozhuan* of the Spring and Autumn Period describe eight solar terms, including the "Four Beginnings" (Beginning of Spring, Summer, Autumn and Winter), which then expanded into the full Twenty-Four Solar Terms system by Qin (221 - 207 BCE) and Han Dynasty (206 BCE - 220 CE) (Zheng). The Western Western Han *Yuanguan* Calendar and the *Huainanzi Tianwenxue* also confirm the full standardization of the Solar Terms (Liu, 2004; Zheng, 2017).

## 3. Why Did the Solar Terms Develop Uniquely in China?

Despite the Sun's importance in all civilizations, only China developed a detailed solar-term-based calendar. Xu (2017) attributes this to four key factors: natural environment, culture, social system and technological conditions. IIn early Europe, farming was often secondary to animal husbandry, which led to different time-keeping priorities. European civilizations, inheriting Greek scientific traditions, pursued a "conquest model" of understanding nature, whereas Chinese agricultural society prioritized living in harmony with natural cycles.

While Xu's (2017) analysis is reasonable, it may be an oversimplification to label Western civilization as a "conquest model". A more compelling explanation for why solar terms emerged only in China could be the difference in how ancient China and ancient Europe perceived time. This perspective is supported by two archaelogical sites: the Taosi Site in China and Stonehenge in the UK.

According to research from Institute of Archaeology at the Chinese Academy of Social Sciences, the Taosi Site was oriented 45 degrees northeast due to ancient astronomical obervations, which contributed to the development of a four-season calendar. By tracking the Sun's movement and the length of shadows, people could accurately determine key solar events. For example, on the spring and autumn equinoxes, the sunrise and sunset aligned with the east and west coners of the site, allowing observation to mark these seasonal transitions precisely. Similarly, during the summer and winter solstices, the Sun's position at noon corresponded with the city wall's top corners, providing a reliable way to identify these key seasonal markers (Cao, 2021).

In contrast, although Stonehenge's true function remains unclear, it is often associated with tracking the Sun's movement throughout the day. This suggests that in Europe, the primary focus was on the daily cycle rather than seasonal changes. This contrast reveals a fundamental difference in time perception: China emphasized seasonal transitions, which were essential for agricultural production, while Europe placed greater importance on the concept of a "day" as a time unit. The author believes that this reflects a kind of efficiency thinking, and to a certain extent, it has led to the fact that from a cultural perspective, the West cannot make the small-scale peasant economy like China to exist for a long time, so there is no need for a calendar that contains agricultural and meteorological information like the solar terms. Unlike China's small-scale peasant economy, which relied on long-term seasonal planning, European societies may not have required a calendar as detailed as the Twenty-Four Solar Terms.

Additionally, the transmission of the Twenty-Four Solar Terms carries a strong empirical tradition, which differs from the rationalist and positivist approaches that later dominated Western scientific thought. This system is based more on personal observation and experiential knowledge rather than abstract theoretical reasoning. In this sense, the enduring influence of the Twenty-Four Solar Terms reflects a fundamental principle of Chinese timekeeping: a close connection between human activity and natural rhythms.

## 4. The Influence and Accessibility of the Twenty-Four Solar Terms

The unique characteristics of the Twenty-Four Solar Terms may also explain why this system has had a lasting impact on countries and regions that share cultural ties with China or have been historically influenced by Chinese civilization. According to the Nihon Shoki, in the 12th year of the reign of Emperor Suiko (604), Japan officially adopted the Chinese calendar, which included the complete Twenty-Four Solar Terms. This system helped correct discrepancies between seasonal changes and traditional timekeeping methods. As a result, the inheritance of China's solar term culture in Japan has exceeded 1,000 year.

Although the Japanese recognized early on that the seasonal patterns of the Twenty-Four Solar Terms - originally developed in the Yellow River Basin - did not fully align with Japan's regional climate, the system remained useful for guiding agricultural activities. Therefore, it was preserved in the Japanese calendar for centuries. Even today, modern Japanese society continues to observe solar terms. The sensitivity and flexibility of modern Japanese people to the solar terms are reflected in their concern for weather forecasts. In the contemporary Japanese weather forecast, every time a solar term arrives, the weather forecaster will broadcast "Today is the solar term of the old calendar..." Many Japanese families will also adjust their diet according to different solar terms and hold different solar term rituals (Fang, 2018).

Beyond Japan, records in the Korean Peninsula also reflect the influence of the Twenty-Four Solar Terms. The earliest surviving Korean historical text, *Samguk Sagi*, documents seasonal sacrifices conducted at the beginning of spring, summer, and autumn. In the *History of Goryeo*, references to the adoption of the Tang Dynasty's *Xuanming Calendar* further illustrate the influence of the Chinese calendrical system. Even in contemporary Korean media, there are references to the Twenty-Four Solar Terms as originating from China. Korean scholars have categorized their solar terms into three groups—seasonal, climatic, and agricultural—based on their meanings and functions. Studies on the Korean Seventy-Two Solar Terms have traced

different versions of the system found in *History of Goryeo* and *Climate in the Seven Political Calculations*, analyzing how the system evolved from the Song and Yuan Dynasties to its localized adaptation in Korea (Song, 2024).

Daron Acemoglu, Simon Johnson, and James A. Robinson, winners of the 2024 Nobel Prize in Economics, proposed that national institutions can be divided into “extractive institutions” and “inclusive institutions”. The author believes the distinction between these institutions may be linked to the extent to which ordinary people have access to advanced knowledge and tools. In other words, it may depend on whether knowledge and technology are monopolized by elites or widely accessible to the general population.

In fact, the development of the Twenty-Four Solar Terms involved contributions from both elites and the public. As seen in historical texts such as the *Book of Changes* and *Huainanzi Tianwenxun*, as well as in archaeological sites like Taosi and Xishuipo, Chinese elites played a crucial role in astronomical observations and calendar formulation. Such a “phenological calendar” is very vague, without specific content about the activities of a certain plant or animal. When the phenological description of the Twenty-Four Solar Terms is more abstract, it is easier to adapt to the actual climate conditions in different regions. This leaves a lot of room for people in different regions to recreate it according to the actual conditions of their regions. China has a span of more than 5,000 kilometers from north to south and from east to west. The needs of agriculture and other production forced people to describe the Twenty-Four Solar Terms according to the actual climate of each place. In other words, a major feature of the Twenty-Four Solar Terms - the information that guides agricultural production comes from the grassroots people in ancient times. Ancient documents lack records of people's cultural creations.

Moreover, folk traditions and proverbs have long served as a means of passing down knowledge about the Twenty-Four Solar Terms. The summary of the phenology and production activities of the Twenty-Four Solar Terms represents the people's creative interpretation of the Twenty-Four Solar Terms. This re-creation has the Twenty-Four Solar Terms, which originated in the Central Plains, to gradually expand their scope of dissemination and even become popular throughout the country, which has had a huge impact on the development of ancient China (Chen, 2019). Therefore, the author believes that the Twenty-Four Solar Terms are highly accessible to ordinary people in today's society. As an empirical science, they provide individuals with a means of interpreting natural phenomena through direct observation and experience. This, the author argues, is the greatest value of the solar terms in contemporary society: they empower the general public to engage with scientific knowledge in a practical and meaningful way.

## 5. Modern Applications and Challenges

In modern China, the influence of solar terms has declined compared to the past due to urbanization and the decreasing rural population engaged in agricultural production. With the reform of China's social system and the development of its economy and society, rural areas have also undergone major changes in politics, economy, and social systems. The way of life and production of the traditional small-scale peasant economy in rural areas has been broken, and the spatial pattern has also been continuously differentiated. The collective agricultural land has been expropriated for urban construction, and the phenomenon of landless farmers has emerged. The data on land use changes in China released by the Ministry of Land and Resources in 2004 showed that from 1995 to 2010, China's rural population decreased by nearly 200 million people, and the number of migrant workers in cities reached 253 million. Among the rural population, the number of left-behind children, left-behind elderly people, and left-behind women reached 50 million, 40 million, and 47 million respectively. The main people engaged in agricultural production are the left-behind elderly and women. From 1995 to 2011, China's rural population decreased by 202.91 million people. After the implementation of the urbanization strategy, the number of people reduced was 151.81 million.

With the advancement of industrialization and urbanization, a large number of farmers gave up their land and went to cities to work, turning to the secondary and tertiary industries. The young and middle-aged labor force mainly engaged in agricultural labor was lost, the output efficiency of cultivated land was low, and the phenomenon of land abandonment appeared. According to the survey data of the Ministry of Land and Resources of China, nearly 30 million mu of cultivated land is abandoned in my country every year, and land

abandonment has become a common situation in China (Meng, 2017). As mentioned above, it can be inferred that a reduction in the use of solar terms is almost inevitable in modern Chinese society due to the shrinking demand. Meanwhile, as a calendar, it was gradually replaced by the modern Western calendar, and as a prediction or routine of climate and weather changing in a year, it has been replaced by weather report. However, this does not mean that solar terms have disappeared entirely. They remain an important part of traditional Chinese culture and natural science.

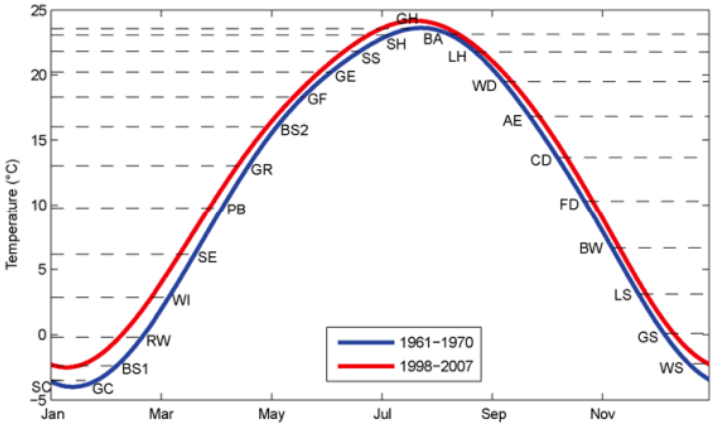
In the perspective of natural science, solar terms are still considered useful for weather prediction due to their ability to encode climate information. A research from Chinese Academy of Sciences in 2011 revealed another use of solar terms in the field of natural science today: evaluating climate change, particularly the extent of global warming. Qian et al. (2011) examined how the Twenty Four Solar Terms have been affected by rising global temperatures. They asked whether, in the context of climate change, the timing of solar terms remains accurate and whether agricultural proverbs and experiences associated with them are still applicable today.

*Table 1: Trends in the China mean temperature for the 24 climatic Solar Terms from 1961 to 2007*

| Solar Terms | Date | Threshold (°C) | Advancing trend [a] (d/47 a) | Warming trend (°C/47 a) |
|---|---|---|---|---|
| The Beginning of Spring (BS1) | February 3–5 | −2.40 | – | 2.37 (0.01) |
| Rain Water (RW) | February 18–20 | −0.20 | 14.6 (0.01) | 2.43 (0.01) |
| The Waking of Insects (WI) | March 5–7 | 2.84 | 11.0 (0.01) | 2.21 (0.01) |
| The Spring Equinox (SE) | March 20–21 | 6.14 | 8.8 (0.01) | 1.25 (0.01) |
| Pure Brightness (PB) | April 4–6 | 9.76 | 7.2 (0.01) | 1.52 (0.01) |
| Grain Rain (GR) | April 19–21 | 13.02 | 6.2 (0.01) | 1.24 (0.01) |
| The Beginning of Summer (BS2) | May 5–7 | 16.02 | 6.2 (0.01) | 1.02 (0.01) |
| Grain Full (GF) | May 20–22 | 18.33 | 6.8 (0.01) | 0.95 (0.01) |
| Grain in Ear (GE) | June 5–7 | 20.23 | 8.0 (0.01) | 0.96 (0.01) |
| The Summer Solstice (SS) | June 21–22 | 21.83 | 9.7 (0.01) | 0.63 (0.01) |
| Slight Heat (SH) | July 6–8 | 23.08 | – | 0.80 (0.01) |
| Great Heat (GH) | July 22–24 | 23.59 | – | 0.62 (0.05) |
| The Beginning of Autumn (BA) | August 7–9 | 23.14 | – | 0.53 (0.01) |
| The Limit of Heat (LH) | August 22–24 | 21.78 | −5.0 (0.01) | 0.61 (0.01) |
| White Dew (WD) | September 7–9 | 19.50 | −5.5 (0.01) | 0.85 (0.01) |
| The Autumnal Equinox (AE) | September 22–24 | 16.83 | −6.1 (0.01) | 1.09 (0.01) |
| Cold Dew (CD) | October 8–9 | 13.67 | −6.0 (0.01) | 0.81 (0.01) |
| Frost's Decent (FD) | October 23–24 | 10.28 | −4.5 (0.01) | 0.83 (0.01) |
| The Beginning of Winter (BW) | November 7–8 | 6.66 | −5.0 (0.01) | 0.83 (0.01) |
| Light Snow (LS) | November 22–23 | 3.09 | −5.2 (0.01) | 0.85 (0.01) |
| Great Snow (GS) | December 6–8 | 0.08 | −6.5 (0.01) | 1.35 (0.01) |
| The Winter Solstice (WS) | December 21–23 | −2.23 | – | 1.46 (0.01) |
| Slight Cold (SC) | January 5–7 | −3.50 | – | 1.77 (0.01) |
| Great Cold (GC) | January 20–21 | −3.51 | – | 1.39 (0.01) |

a) Positive signs indicate advancing trends whereas negative signs indicate delaying trends; significance levels are given in parentheses.

*Figure 2: Climatological mean ALCs (seasonal cycles) of the China mean temperature for the earliest 10 years (blue line) and for the latest 10 years (red line).*




Dashed lines indicate the temperature thresholds for the 24 Solar Terms, which are listed in Table 1 and are the same as in Figure 2. The abbreviations denote Solar Terms, which are listed in Table 1.

Their study focused on two key aspects of solar terms: their function as a calendar and their embedded climate information. From the basic characteristics of the Twenty-Four Solar Terms revealed by the data, the coldest solar term is Great Cold(–3.51℃), and the hottest solar term is Great Heat (23.59℃). These two seasonal extreme phases summarized two thousand years ago have not changed fundamentally under the current background of global warming. Furthermore, the researchers conclude that on average, the number of Minor Cold and Major Cold days has decreased. The average number of Major Cold days in the past 10 years (1998-2007) has decreased by 56.8% compared with the 1960s, and in 2007, the temperature did not even fall below the threshold of Major Cold. The number of Major Heat days has increased. The average number of Major Heat days in the past 10 years has increased by 81.4% compared with the 1960s. The solar terms in the rising temperature stage tend to be significantly advanced, among which the Rain Water solar term has advanced by about 15 days, the most; while the solar terms in the falling temperature stage tend to be significantly delayed. Against the backdrop of global warming, the Twenty-Four Solar Terms in the national average temperature have tended to be significantly warmer, causing the entire seasonal cycle to rise as a whole. Among the Twenty-Four Solar Terms, the warming trend in the rising temperature stage is generally greater than that in the falling temperature stage; the Rain Water, Beginning of Spring, and Waking of Insects solar terms have the fastest warming, warming by 2.43, 2.63, and 3.81 days, respectively, between 1961 and 2007. 2.37 and 2.21℃ (Qian et al., 2011). In the global context of climate change and global warming. This study provided an example and clearly revealed the application of solar terms in today's society in a macro perspective. It had point out the usefulness of the solar terms as a calendar that contains information.

As mentioned above, solar terms have a great impact on individuals, which also play a role in health preservation——the management of personal physical, mental and spiritual health. Due to the trend of the revival of traditional culture. Health Preservation that based on solar terms and traditional Chinese medicine is considered as an alternative method other than Modern Medicine. Because of the phosphorous of Chinese internet, there are great number of posts on social media about solar terms and health preservation. This trend is especially evident on Chinese social media platforms, where numerous posts discuss how different solar terms correspond to specific health practices.

*Figure 3: Example post about Solar Terms on Chinese Social Media (translated version)*

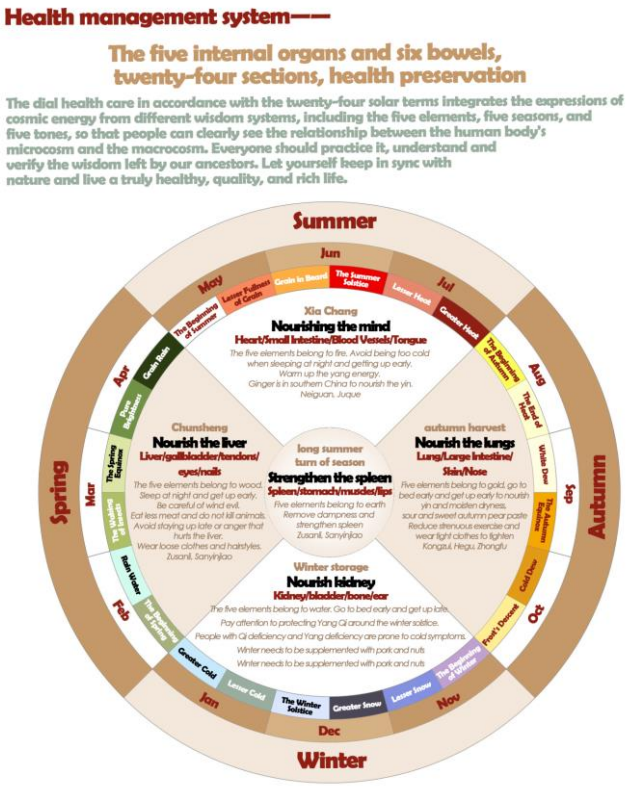



Figure 3 is a post from the Chinese social media platform "Rednote" discusses how different seasons affect various organs and suggests daily habits to maintain health accordingly. Without assessing the scientific validity of these claims, the post reflects the principle of "adapting to the times" in traditional Chinese medicine and solar terms. "Adapting to the times" is an important part of the "Three Factors" principle of traditional Chinese medicine, which reflects the unity of matter, function and time. Using the solar terms to guide traditional Chinese medicine treatment is an important method to reflect the principle of adapting to the seasons. It reminds people that they must live and work according to the laws of nature to be healthy (Jiang et al., 2019).

Historically, traditional Chinese medical texts have supported such ideas. For instance, Qing Dynasty physician Wang Ang wrote in "*Collected Explanations of Medical Prescriptions*" that "The liver is the beginning of the movement of spring yang and the source of the growth and development of all things." Based on the research of Xiulun Gan. The experimental data can clearly prove the infographic's statement that "kidneys should be taken care of in winter" and "lungs should be taken care of in autumn". However, the explanations of "Heart should be taken care of in Summer", "liver should be taken care of in Spring", and "stomach should be taken care of at the turn of the seasons." is still unclear (Gan). Based on the data from Beijing University of Chinese Medicine. The peak incidence of bronchial asthma occurs during Cold Dew, which is the most common season in autumn. The top three solar terms with the highest incidence are Cold Dew, Autumnal Equinox and Beginning of Winter (Hao & He, 2017). In conclusion, from this post and the researches mentioned by the author. It can be seen that there is a certain connection between solar terms and health preservation. At the same time, some posts on the Internet are also in line with tradition.

However, one of the main obstacles to promoting solar term-based health practices is the difficulty of fully proving or disproving them using modern scientific methods. Western scientific frameworks prioritize experimental validation, while ancient Chinese traditions often rely on the accumulation of experience and observations. This difference in methodology has contributed to misunderstandings, with some people dismissing solar term-based health practices as unscientific. The author argues that such misunderstandings are one of the reasons why solar terms have been overlooked in modern society.

Although younger generations in China may not fully understand solar terms, interest in them has been growing in recent years. The author holds the perspective that this is caused by the poor understanding of the Solar Terms. Based on the form sent by the author that investigates the attitude and the understanding of teenagers that has Chinese background (students that is ethnically Chinese or understand Chinese) to Solar Terms. In the 27 samples that filled the form. 92.5% of the participants chose “I've heard of it, but don't know much about it” and “Learned in school”. From this point of view, the understanding of solar terms by contemporary young people is mainly comes from a small amount of teaching and explanation around them and in school.

However, an analysis of the latest Chinese textbooks reveals that content related to solar terms appears only in small quantities within geography and Chinese language subjects After analyzing the selected texts involving the Twenty Four Solar Terms in 12 textbooks, it was found that there were 25 places in the textbooks that reflected the content of the Twenty Four Solar Terms. Except for “*Nine Days Song*” and “*the Twenty Four Solar Terms Song*”, the other 23 time reflected the content of specific solar terms. Mainly, they reflected the rural scenery and farmers' working scenes of each solar term, the weather conditions and the growth of animals and plants of each solar term, and the customs and habits of each solar term and people's life wisdom (Wu et al., 2023). However, in this article, the author seems to have over-expanded the concept of solar terms. Any text that mentions customs, climate conditions, and labor scenes is considered to be “mentioning solar terms.” Therefore, the content that practically related to the Solar Terms has only contained very small amount of the content. The author must pessimistically believe that the content may only “*Nine Days Song*” and “*the Twenty Four Solar Terms Song”* That is said that in fact Chinese Youngsters had actually poor understanding of the Solar Terms, this is caused by the small amount of mentioning of the Solar Terms in their daily study life.

This lack of education is reflected in the results of the author’s survey. When asked which season the End of Heat solar term belongs to, only 48.1% of respondents answered correctly. For the question “Is Solar Term a lunar calendar?” the correct rate was just 0.37%. Meanwhile, 44.4% correctly answered a question about agricultural activities during the Cold Dew solar term. These relatively low accuracy rates indicate that Chinese teenagers have only a limited understanding of solar terms, likely due to their minimal exposure in the education system.

## 6. Strategies for Revitalization

China possesses an extensive educational and propaganda system network, which can serve as an effective tool to educate students and the general public on the preservation of cultural heritage. From a macro perspective, the author suggests the following approaches:

1. Incorporating the Twenty-Four Solar Terms into Education

Policymakers and textbook developers should integrate more content related to the Twenty-Four Solar Terms into various subjects such as geography, Chinese language, biology, and agricultural studies in higher education. As an empirical system, the Solar Terms offer opportunities for hands-on learning. Take geography course as an example, Based on the research from Li and Gao (2024), the Solar Terms are easy to observe, therefore, in geography courses, students should be taught to make simple measurements of solar terms. Students can actively learn the relevant knowledge about the solar altitude angle through this, and on this basis can simulate the changes in the sun's apparent motion trajectory in a day and a year, and better understand and explain related phenomena in life.

Furthermore, educators should establish interdisciplinary connections to deepen students' comprehension of the significance of the Solar Terms, blurring the boundaries between different subjects. In this process, the educators could utilize local social and natural resources while using textbooks to apply inter-subject knowledge to reality (Li & Gao, 2024). This process could take students as the main body of cultural heritage protection, take practice as the main component, to let students experience the usefulness and benefits of solar terms to their lives. Rationally use China's tremendous educational resource network as a practical and effective tool.

2. Leveraging Propaganda and Digital Tools for Cultural Promotion

As a country that with strong propaganda tools, China should utilize these tools in order to integrate and guide spontaneous promotional behavior to make it constructive and effective Accroding to research by Xiafei Sun, one of the effective way to promote cultural heritage is “productive protection”(Sun), that is, integrating cultural heritage into social production, and the dominant production tool in modern society is the Internet. Therefore, the author believes that China should start the the promoting from using its large internet user base to promote the protection of cultural heritage. Although China's traditional intangible cultural heritage protection methods have preserved a large number of precious intangible cultural heritage, the damage of storage media has made long-term preservation and utilization difficult. Digitalization of solar terms facilitates visualization of solar terms and facilitates majority understanding (Huang & Tan, 2012). At the same time, dataization can be used to apply solar terms from multiple angles, for example, making the Solar Term data into interactive software or websites. This will expand the methods which solar terms could be used.

## 7. A Micro-Level Approach: Promoting the Solar Terms via Digital Platforms

To illustrate an effective method for promoting the Solar Terms at the micro level, the author references China’s large internet user base. Based on the *“2020 National Research Report on Internet Usage among Minors”* presented by official medias (Editorial, 2021). The report is based on a sample survey of schools in 31 provinces across the country. Data shows that in 2020: China's underage Internet users reached 183 million, the Internet penetration rate for minors was 94.9%, and the average online time of underage Internet users on weekdays was more than 2 hours per day, and the average online time on holidays was more than 5 hours per day, accounting for 11.5% (National Library Research Institute). These data revealed the potential of this mass demographic in promoting the Solar Terms. And the importance of using modern and acceptable methods for teenagers in promoting.

The author proposes that smartphone applications and websites are among the most effective tools for this purpose. After referencing in four articles: *“Research on information visualization design of the 24 solar terms culture”,”Research on application of information visualization design of the 24 solar terms health culture”, “Design of Chinese traditional cultural elements in mobile games”, “Research on information visualization design of traditional culture”.*

The author has made a sample of the function design draft of the Solar Terms Promoting Apps.

*Functions:*

*1. Allow users to understand the dates of the 24 solar terms and the position of the earth's revolution when using it*

*2. Allow users to understand the customs, precautions, activities, etc. of the 24 solar terms, and can check in for them so that they can prepare for the solar terms.*

*3. Allow users to use this software as a calendar to understand basic dates, the lunar calendar information.*

*Interface Design:*

*1.Home Screen: Through the form of a 24 solar term disk, the user is shown the arrangement of the 24 solar terms, the seasonal division (spring, summer, autumn and winter are represented by different colors), and the current solar term. At the same time, the current Gregorian and lunar calendar dates, the current solar term name (represented by darker colors), and the number of days until the next solar term are displayed in the center of the solar term disk.*

*2. Daily Information Page: In a form similar to the old lunar calendar interface, basic information of the day and the current solar term is presented. For example, the Gregorian and lunar calendar dates, the day's taboos, and the unfinished preparations for the solar terms (you can check in directly on this interface)*

*3. Check-in Page: Displays the preparations for the next solar term (for example, you need to prepare dumplings and thick clothes for the beginning of winter, and spring pancakes for the beginning of spring, as well as health tips that need to be paid attention to). At the same time, you can check in after clicking on this note, and long press to view more detailed fun facts and scientific evidence.*

*4. Check-in Record Page: Displays the check-in record of the solar term, using the shape of a small square group to refer to the date in a solar term. The date after checking in will have a color change to indicate that the check-in has been completed.*

*Aesthetic Design: The color tone is divided according to different seasons, such as light blue-green in spring, orange in summer, brown-orange in autumn, and dark blue in winter* (Chen, 2019; Liu, 2004; Liu, 2023; Wang, 2019).

## 8. The Broader Significance of Protecting the Solar Terms

The author agrees that preserving and revitalizing the Solar Terms should center on their users—particularly younger generations—through a coordinated effort involving government oversight and spontaneous societal engagement.

The Twenty-Four Solar Terms represent a traditional methods by which the Chinese cultural sphere has understood and interpreted the natural environment. This system evolved through collaboration between elite scholars and the general populace, culminating in the unique lunisolar hybrid calendar still in use today. The author asserts that the Solar Terms embody an integration of empirical observation, collective wisdom, and institutional creation. It reveals the perspective of "harmony between man and nature" in Chinese culture is also one of the most significant differences between Chinese culture and Western culture.

In the modern era, where cultural appropriation is prevalent, the persistence of this unique tradition is significant. However, urbanization and the declining emphasis on traditional customs have led to reduced application of the Solar Terms in daily life. The shift from rural lifestyles to digital calendars poses the risk of this tradition being forgotten.

The author contends that the preservation of tradition does not contradict progress. On the contrary, the Solar Terms hold potential contributions to contemporary issues such as climate change observation. Finally, the author hopes the proposed strategies in this paper will contribute to the revival of the Twenty-Four Solar Terms, ensuring that this cultural heritage continues to play a meaningful role in Chinese society and beyond.

## References

Cao, H. (2021). City of dawn: The orientation and calendar of Taosi City site from the perspective of astronomical archaeology. *Southern Cultural Relics*, (3), 1-9.

Chen, X. (2019). *Design of Chinese traditional cultural elements in mobile games* [Unpublished master's thesis, Beijing University of Posts and Telecommunications]. Beijing.

Editorial. (1985). Lunar calendar, solar calendar, and lunisolar calendar. *New Agriculture*, (Z1), 6-7.

Editorial. (2021). 2020 national research report on internet usage of minors released. *Journal of the National Library of China*, *30*(4), 13-13.

Fang, L. (2018). The cultural evolution of the twenty-four solar terms in Japan from the perspective of Japanese calendar studies. *Journal of Henan Institute of Education (Philosophy and Social Sciences Edition)*, *37*(6), 32-40.

Hao, Y., & He, J. (2017). Analysis of the solar term patterns of 10 common diseases in Beijing. *Chinese Journal of Traditional Chinese Medicine*, *32*(3), 1001-1004.

Huang, L. (2024). Fu Gua and winter solstice: Cultural implications of the integration of heaven, earth and man. *Journal of Fujian University of Technology*, *22*(2), 189-195.

Huang, Y., & Tan, G. (2012). Research on digital protection and development of China's intangible cultural heritage. *Journal of Central China Normal University (Humanities and Social Sciences), 51*(2), 49-55.

Hexagram 24: Earth Thunder Fu - Yi Yao Tu, 8 May 2023, popolearning.co/%E7%AC%AC%E4%BA%8C%E5%8D%81%E5%9B%9B%E5%8D%A6-%E5%9C%B0%E9%9B%B7%E5%BE%A9/.

Jiang, Q., Han, Y., & Luo, J. (2019). The 24 solar terms and traditional Chinese medicine. *Chinese Journal of Traditional Chinese Medicine, 34*(4), 1653-1656.

Li, M., & Gao, Z. (2024). Project-based practice of interdisciplinary theme learning in geography courses: Taking the theme of "Twenty-four solar terms and our lives" as an example. *Middle School Geography Teaching Reference,* (31), 9-13.

Liu, S. (2020). *Research on information visualization design of the 24 solar terms culture* [Unpublished master's thesis, Lanzhou University]. Lanzhou.

Liu, X. (2017). The formation process of the 24 solar terms. *Cultural Heritage,* (2), 1-7.

Liu, Y. (2004). On the yin-yang harmony thinking in Zhouyi. *Zhouyi Research,* (5), 65-71.

Liu, Y. (2023). *Research on application of information visualization design of the 24 solar terms health culture* [Unpublished master's thesis, Jilin University of the Arts]. Changchun.

Meng, J. (2017). *The decline and reconstruction of rural areas in the process of urbanization in China* [MA thesis, Hebei Normal University]. Shijiazhuang.

Qian, C., Yan, Z., & Fu, C. (2011). Climate changes during the 24 solar terms in China from 1960 to 2008. *Chinese Science Bulletin, 56*(35), 3011-3020.

Shen, Z. (2001). Study on the formation of the twenty-four solar terms. *Southeast Culture,* (1), 53-56.

Song, Y. (2024). The Korean inheritance of the 24 solar terms. *Ancient and Modern Agriculture,* (3), 4-5.

Twenty-four Solar Terms Health Management System, xhslink.com/m/8BVkcCa7WaS. Accessed 28 June 2025.

Wang, C. (2019). *Research on information visualization design of traditional culture* [Unpublished master's thesis, Shanxi University]. Taiyuan.

Wu, C., Ma, L., & Zhao, J. (2023). Analysis of the content and arrangement of the selected articles on the 24 solar terms in the unified primary school Chinese textbook. *Primary School Chinese,* (12), 24-28.

Xu, W. (2017). The origin and practical significance of the twenty-four solar terms in China. *Journal of Central Plains Culture, 5*(4), 95-101.

Zheng, Y. (2017). Exploring the origin of the 24 solar terms. *Folk Culture Forum,* (1), 5-12.

## Funding

This research received no external funding

## Conflicts of Interest

The authors declare no conflict of interest.

## Acknowledgment

This paper is an output of a personal science project