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Article

Implementing "Systems Thinking" to Reach Sustainable Development Goals: Multi-perspective Research into China's Ecological Civilization

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Abstract

This study filled a gap in the literature by examining whether and how "systems thinking", a theoretical lens advocated by the World Business Council for Sustainable Development Vision 2050, can be implemented to realize Sustainable Development Goals (SDGs) within the context of China. The study first explained the concept of systems thinking, then provided a review of China's Ecological Civilization movement and the three pillars of traditional Chinese culture, namely, Daoism, Buddhism, and Confucianism. The research aimed to investigate the extent to which holistic Chinese cultural thinking is applied to drive sustainable business practices in China. We drew empirical insights from multiple perspectives and 74 key informant interviews, ranging from Chinese government officials and practitioners to university academics. Using Foucault's episteme to examine the possibility of a transition to systems thinking, our key findings reveal that the Chinese micro-economy and firm-level operations, whilst being aware of the importance of environmental issues from top–down, still focus on economic values in the short run. However, as an episteme change is recognized over time, it is likely that the gap between vision and practice will be narrowed down, and a sustainable China just might prevail.

Keywords

Sustainable Development Goals, traditional Chinese thought, systems thinking, sustainable business practice

Introduction

Vision 2050 from the World Business Council for Sustainable Development (WBCSD, 2021) is a framework that guides businesses through a transformation process toward achieving the United Nations (UN) Sustainable Development Goals (SDGs). This transformation is based on the premise of value creation rather than value extraction, and multiple values that also include social and ecological, rather than just economic ones (Birkin & Polesie, 2012). The shift is expected to bring long-term business success whilst

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creating a sufficient environment for 9 billion people on Earth to all live well within planetary boundaries (Steffen et al., 2015). It is well recognized that integrating the SDGs into day-to-day business operations is not straightforward because they target complex and dynamic socio-ecological challenges (Bergman et al., 2017). Therefore, Vision 2050 particularly advocates the use of "systems thinking", a holistic and integrated theoretical lens, to better understand sustainability management and enable a transformation to sustainability (Voulvoulis et al., 2022; Williams et al., 2017).

As a concept originating from natural science, systems thinking has been applied across a vast array of disciplines, such as psychology, education, engineering, business, and management (Bi et al., 2021; Camelia & Ferris, 2016). Whilst definitions vary, systems thinking parallels holistic thinking as it presupposes that everything, tangible and intangible, is interrelated and interconnected in a network of interrelationships (Cechvala, 2024). Werhane (2002, p. 36) denotes this philosophical stance elegantly:

> Almost everything we can experience or think about is in a network of interrelationships such that each element of a particular set of interrelationships affects the other components of that set and the system itself, and almost no phenomenon can be studied in isolation from all relationships with at least some other phenomenon.

Based on this lens, human activities need to be integrated with the socio-ecological system and the planet as a whole (Larrinaga, 2020). In other words, instead of focusing on short-term economic benefits, businesses are urged to have a holistic view of system-wide success in the long run, so that they can play a leading role in the transformations toward Vision 2050.

Despite a wide conceptual recognition of systems thinking as the means to advance the UN's SDGs, there is a lack of empirical research from multiple perspectives to explore how to implement this approach in real life (Erzurumlu et al., 2023). Moreover, a review by Mio et al. (2020) also reveals that studies about businesses and SDGs mainly investigate Europe as the geographical location, whilst lacking insights from the developing world. To address this call, the current research investigates the case of China, a major world economy that in recent years has enjoyed rapid growth and is currently increasingly focusing on tackling environmental challenges (Chen & Wang, 2021). Our proposition is that, conceptually, the implementation gap between systems thinking and sustainable development should be small in the case of China, thanks to the following two reasons: (a) China is eager to pursue sustainable goals, formulating its own vision and movement, manifested in the so-called Ecological Civilization framework (Wei et al., 2021); and (b) systems thinking is innately embedded for thousands of years in Eastern culture, including that of the Chinese (Camelia & Ferris, 2016), and thus the transition to sustainability can be facilitated with a revival of traditional Chinese thinking (Zhang, 2014).

With this in mind, we aim to empirically investigate the extent to which the systems approach, manifested in holistic Chinese cultural thinking, is applied to drive sustainable business practices in China. Drawing upon multiple perspectives and 74 key informant interviews, and using Foucault's episteme to examine the possibility of a transition to systems thinking, this study hopes to enrich the body of sustainability management literature and provide useful insights to academics, practitioners, and policymakers alike.

In the remainder of the article, we first provide a more detailed review of systems thinking as a tool to attain the SDGs, followed by an account of China's eco-civilization framework, the so-called three pillars of traditional Chinese culture, as well as Foucault's concept of episteme change to explain transitions to a new possibility of knowledge. We then describe the research method employed in this project to collect and analyze the data from different sources and multiple stakeholders' perceptions, thoughts, and practices in the current economic, social, and ecological systems. Discussions of the findings and implications of the research are drawn upon before conclusions are presented at the end of the article.

Literature Review

Systems Thinking to Attain SDGs

Defined as a lens through which we can understand a phenomenon as a whole rather than seeing the component parts individually (Ricigliano & Chigas, 2011), systems thinking deconstructs and examines the occurrence as well as the holistic changes of phenomena that exist within the natural world (Cechvala, 2024). Due to feedback loops within a system, its components are interconnected, and thus, it is vital to appreciate this interdependence to fully comprehend the dynamics of the entire system (Williams et al., 2017). Systems thinking is considered an alternative theoretical lens to traditional linear thinking and the reductionist, mechanistic worldview prevalent since the start of the twentieth century in Europe (Birkin et al., 2021; Voulvoulis et al., 2022). The concept promotes a deeper understanding of the interrelated and interdependent systems in which businesses operate (Erzurumlu et al., 2023).

From the conception of the 17 SDGs in 2015, the UNs have recognized the challenges that today's businesses face when trying to address the potentially conflicting interests of multiple stakeholders (Mio et al., 2020). Systems thinking is therefore advocated as a valuable approach that helps businesses map and navigate complex environments and maintain their ecological integrity (Erzurumlu et al., 2023). The tool is expected to enable businesses to expand sustainability practice while delivering financial promises to stakeholders (Paetzold et al., 2022). As it offers conceptual clarity about the dynamic relationships that exist among elements of the environment, systems thinking may reduce the gap between desired outcomes and operational practice (Cechvala, 2024). Overall, systems thinking is widely accepted as a comprehensive tool for solving complex environmental problems (see, e.g., Seiffert & Loch, 2005; Williams et al., 2017). However, there is still a lack of empirical evidence on how this approach can be operationalized to achieve the goals (Voulvoulis et al., 2022), especially outside of Europe, the main site for research on businesses and SDGs to date (Mio et al., 2020).

China's Ecological Civilization Movement

As a long-term solution to address environmental crises in the aftermath of decades of exponential economic growth in China, ecological civilization was first introduced in 2007 within the 17th Chinese National Congress of the Communist Party. This is an institutional framework to provide an innovative way to reconcile economic development and environmental protection. Point Five of the 17th National Congress Report (2007) states the new requirements for "attaining the goal of building a moderately prosperous society in all aspects" as:

> To construct eco-civilization by basically forming the industrial structure, growth pattern and consumption mode of energy and resource conservation and ecological environmental protection… Large-scale circular economy will be formed … the eco-civilization concept will be firmly established in the whole of society.

The eco-civilization is considered the nation's vision for sustainable development using distinct Chinese characteristics (Wei et al., 2021). It is said to be underpinned by Chinese cultural values, which emphasize the interdependence between humans and nature, thereby respecting and maintaining the ecological environment for the current and future generations (Lumsden, 2021). Indeed, it is meant to be a new civilization, which is beyond and not the continuation of industrial civilization (Zhao, 2013). Furthermore, Xiao (2018) claims that eco-civilization will redefine social relationships, relationships between humans

and nature, and relationships between people and between nations. The ultimate goal in life is redefined as the development and happiness of humans, rather than being dependent on material acquisitions.

China's eco-civilization vision and framework are developed to appeal to Chinese people with its rich cultural references and roots in Chinese philosophical traditions (Wei et al., 2021). It can be argued that holistic Chinese cultural thinking corresponds with systems thinking and underlies China's ecological civilization and its progress towards sustainable development.

Traditional Chinese Culture

When discussing Chinese philosophical traditions, the doctrines of Confucianism, Daoism, and Buddhism are often presented together as the three pillars of this institution (Liang, 2013). They are the main systems of belief that have been an integral part of the political, social, and economic life of the Chinese people for thousands of years (Elite Reference, 2017). Whilst each doctrine has its uniqueness, they all in some way represent the same holistic worldview that everything is interdependent and interconnected in what is essentially an ecological system (Kassiaola, 2022).

The first pillar, Confucianism, is not a religion but rather a school of thought used by scholar-officials to provide social and political structure and reform (Tai, 2017). It originated with and was disseminated by Kong Fu-Tzu, or Confucius (551–479 BC), one of the most influential Chinese philosophers from ancient times. Pursuing *ren* (meaning the perfect virtue) is the center of Confucianism (Feng, 2013; Xu, 2017). In order to achieve social harmony, Confucianists, in practice, establish a system that governs moral standards and ethical behaviors (Jenkins, 2002). Confucianism thus does not provide direct guidance for living ecologically; nonetheless, according to Tu (2001), it makes a significant ecological contribution with the idea of the unity of heaven and humanity. This idea transcends an anthropocentric lens to achieve an anthropocosmic worldview in which humans are embedded in the cosmic order. Furthermore, Zhuang (2015) argues that the key to the triadic relationship between heaven, Earth, and man is the notion of humans as being bound by universal and moral laws to be responsible for the care and continuation of the process of life and regeneration.

The second pillar is Daoism, aka Taoism. Even though ancient Daoism was not ostensibly ecological, it has been favoured by scholars discussing systems thinking in China's eco-civilization (Girardot et al., 2001). Arising at around the same time as Confucianism, Daoism is often considered a religion of nature (Houten, 1988) and an early expression of "respect" for nature (Cooper, 1994). The dissemination of this belief was based on the writing of Lao Tzu's "The Classic of the Way and its Power," or "Tao Te Ching" (Chan, 1999). The central tenet of Daoism is the belief that the human race is a microcosmic principle of the universe, representing the link between time and space to provide a balance between them. Tao, the Way, defines an interconnected whole for everything in nature. A person can be with "the Way" by living in harmony with nature and all its transformations, and by following the principle of *wu-wei*: non-action, or not interfering, altering, or disrupting the organization of the universe (Jenkins, 2002). In addition, Daoism also argues that people should "manifest the simple, embrace the primitive, reduce selfishness, and have few desires," to achieve the three treasures of moderation, simplicity, and frugality (*Tao Te Ching*, verse 67).

The third pillar, Buddhism, is based on the teachings of Buddha and is one of the largest religions in the world (Bowker, 2021). Buddhism entered China through Indian traders and missionaries along the Silk Road. It was modified and amalgamated with native Chinese culture from the Tang dynasty

onwards (Xu, 2017). Buddhism advocates that human beings and other species are equal, in stark contrast to Western philosophy, in which human beings are the center of the universe and the master of all species (Alitto, 2013). In addition, in Buddhism, all entities have a soul, and hence, human beings should not harm or kill other species (James, 2007). In common with Daoism, Buddhism promotes the suppression of desires, such as the craving for wealth, fame, or power, in order to be free from suffering and to enter a state of freedom known as Nirvana (Jenkins, 2002). Furthermore, when someone becomes a "Buddha," after a long period of practice, they recognizes that everything in the world is as one (Feng, 2013).

The potential for Chinese traditional thinking to contribute to attaining the UN's SDGs is neatly summarized by Kassiaola (2022, p. 551) as follows:

> Let us uproot and replace anthropocentrism, which wreaks havoc on nonhumans, the physical environment and ourselves. This 'new basic story' of Zhang Zai's Qi/qi cosmology negates anthropocentrism and creates a more sustainable and just vision that can lead to a new and more unified and harmonious relationship with our planet and its inhabitants.

Foucault's Episteme Change

The rise of holistic and ecological thought calls for a systematic political, sociocultural, and institutional shift to replace the dominant, reductionist economic rationality in order to achieve long-term SDGs (Kallis, 2011). The transformation to sustainability in Vision 2050 requires a transition between these alternative worldviews, which may be termed an *episteme change*.

Foucault's (1994) describes an episteme as the assumptions and possibility for knowledge that defines an epoch. Within Europe, Foucault identifies a series of historical epistemic epochs, culminating in the modern, that have given birth to the economic and business concepts that we still employ. Foucault's view of the modern is dualistic and mechanistic. However, as previously noted, this dominance of the modern episteme has recently been challenged by the emergence of a new episteme, typified by systems thinking (Elgin, 2014; Voulvoulis et al., 2022). Whilst this change in episteme has far-reaching social and cultural consequences, Speth (2008, p. 236) sums up its effects as follows:

> being, not having
>
> needs, not wants
>
> better, not richer
>
> connected, not separate
>
> ecology, not economy
>
> part of nature, not apart from nature.

It is well recognized that such profound changes will evidently take time and will be difficult to translate into business practices (Gray, 2006; Gray & Milne, 2004). Nevertheless, this article seeks to use the understanding of Foucault's episteme change to explore the possibility of a shift to systems thinking, which is manifested by holistic Chinese cultural thought, to enable businesses to deliver SDGs in the context of China.

Methodology

Research Approach

To capture the diversity in values and move beyond the reductionist economic perspective, Latour's (2005) Actor-Network Theory (ANT) has been utilized as the research approach of this study. ANT has been used extensively in social science research, including cultural archaeology, sociology, business management, and tourism (Li et al., 2014). It is a methodology that looks for and describes links and ties within a network that then serves as the ontological and epistemological foundation (Sayes, 2014). Specifically, ANT provides an appropriate way to study systems and holistic Chinese cultural thinking because it seeks to understand social networks as a complex system made up of interconnected actants. Moreover, actions are not only human-to-human connections but also the heterogeneous connections between humans and non-human actants (Contesse et al., 2021). This interconnectedness in the approach removes the dualistic view separating humans from non-humans, subjects from objects, or humans from nature. There are many ways for an ANT researcher to collect and analyze data, for instance, using observations, interviews, and reading historical documents or literature. Furthermore, Latour (2005) notes that an ANT researcher is supposed to avoid giving social explanations, but instead, to describe the actions of heterogenous actants via tracing their connections to reveal their relationships.

Research Process

This study provides multiple perspectives from different sources, including mainstream news and documentary films on environmental practice in China, as well as a series of semi-structured interviews to reveal multiple stakeholders' thoughts and actions in relation to socio-ecological issues. The topic is a relatively fresh research area and thus our work is exploratory in nature, and qualitative methods are deemed to be the most appropriate (Saunders et al., 2020). The interview method also avoids the common potential problem of the social desirability bias of a survey (Andorfer & Liebe, 2012). It also facilitates the researcher's close association with the respondents and enhances the validity of an in-depth inquiry (Crouch & McKenzie, 2006).

Face-to-face interviews were conducted with 74 key informants in China, including 30 blue-collar workers, 17 middle managers, and 2 senior executives [Chief Executive Officer (CEO) and Chief Financial Officer (CFO)] in a state-owned firm that manufactures aero-engines for the national army. Five partners from top international, national, and provincial accountancy firms were also interviewed. In addition, we interviewed one university professor specializing in environmental engineering and 15 students ranging from first to final year on a degree program with an optional environmental accounting subject. Two local governmental officials were interviewed, the first as the "Head of Resource and Environmental Protection Department" of the National Development and Reform Commission (Guang Zhou City), and the second as the "Head of Environmental Protection Bureau" (Peng Zhou City). We also interviewed two staff members, including the founder, of the "Life of Harmony" (LOHO) project, which puts traditional Chinese culture into practice in a village in Sichuan Province. A summary of the data sources is provided in Appendix A.

The interview questions were designed to provide insights to answer the research questions, which include an understanding of the current environmental protection situation in China, current business practices, and personal opinions on the implications of traditional Chinese values and culture. The questions were tailored to suit the roles of different interviewee groups. For instance, company interviewees

were asked which attitudes and values they hold for environmental protection and how these inform their practice. But when consulting local government officials, more weight was given to environmental policy and implementation questions. The questions for student participants were connected to their studies, interests, as well as reasons for choosing their optional environmental accounting module. The questions were in an open-ended format, starting with an informal discussion to create rapport with the interviewee, followed by general to more in-depth questions (Saunders et al., 2020). The interview protocol was pilot-tested for length and content before the questions were fine-tuned and jargon was eliminated for the final version used in the actual interviews. The interviews were then conducted in Chinese, and data were taken in the form of notetaking because most of our interviewees declined to use voice recording. The notes were transcribed in detail immediately after each interview whilst fresh and translated into English. In accordance with ANT, the analyst simply traced the actions of actants and made links to learn from them to make sense of the data (Latour, 2005).

While the ANT is the overall approach for data collection and handling, Foucault's episteme is used at the finding and discussion stage to examine the possibility of a transition to systems thinking in China. The rationale for this is that the concept of episteme defines the possibility of knowledge in a given epoch, and the transition to systems thinking would mark the beginning of a new epoch based on a new possibility of knowledge.

Results/Findings

From Mainstream News and Documentaries

Environmental protection has emerged as a new industry in China that brings huge profits from such businesses as environmental impact monitoring and assessment, sewage treatment, and recycling. Ironically, due to high energy consumption and low productivity, sewage treatment plants themselves have become a source of environmental pollution (Environmental Protection Today, 2018, April 26). Meanwhile, in response to the Central Government's increased measures for environmental protection, a few black industries have been illegally created. For example, there exists an unlawful industry that helps companies steal emissions, illegally transfer industrial wastes, buy and sell foreign wastes, as well as transfer the Certificate of Approval for Import of Wastes (Baijiaohao News, 2018, January 3).

There are documentaries that record true stories behind China's environmental pollution (CRI Online, 2016, November 25). *Plastic China* is a documentary film that received a Jury Special Award at the 2016 International Documentary Film Festival Amsterdam (IDFA). The film records how a village in China handles foreign waste to make money. Workers in China are tasked with sorting foreign waste as it arrives in the country. Bags of clothes, after sorting, can then be sold for dozens to hundreds of yuan, even though they are worthless in the Western countries of origin (Baijiaohao News, 2018, January 3). Rivers are increasingly polluted, resulting in the disappearance of waterweeds and fish. Local people pass on the wisdom of avoiding the use of polluted water, even just to irrigate agriculture, after seeing it make their crops die. People in polluted areas for a decade have had to buy fresh water for drinking. The air is heavily polluted due to a significantly enormous amount of gas emitted from the incineration of plastic waste (Sohu News, 2014, December 22). This IDFA documentary took 3 years to complete (Union China, 2015, January 9). Film director Huang, whilst interviewed during the production of this documentary, reported that:

> I was often obstructed by the local government. I was even arrested by them, but what really made me feel very despaired is that local people also did not welcome me. They made protest for protecting their economic benefits. This ignorance in the bone shocks me very much. (Sohu News, 2014, December 22)

Interviews of a State-owned Company Managers and Workers

Both the CEO and CFO of the state-owned aero-engine manufacturer explained that before the year 2000, they were not willing to consider taking on environmental responsibilities. Between 2000 and 2005, they did so due to additional national requirements, and after 2005, they became more active in addressing environmental issues. It came to their attention that the number of their staff diagnosed with cancer had been increasing at the same time that the government increased their environmental protection funding. Moreover, the managers now realize that, as a state-owned enterprise, they need to take more socially responsible action because of the "face" concept. The CEO commented that *this is related to the public image; the good public image can bring more profits to the company; therefore, it is worth doing*. Nevertheless, the CFO noted that customers still care more about product quality and price rather than environmental issues. He also argued that companies have an important responsibility to focus on paying as much taxes as possible to the nation.

The department managers interviewed in this study all agreed on the significance of environmental protection. A number of these intermediate managers also claimed they do believe in a harmonious human–nature relationship. They all had training on environmental issues. A department manager in the study said, *We are a large state-owned company manufacturing products for the army. We need to have social responsibilities, and we cannot lose face on this*. A department manager added, *Environmental protection is about living a better life. We have money now so that we are considering how to live better*. Another told us, *Zhu Zhou City is now aiming for building a city of modern industrial civilization and ecological living*. He continued by saying:

> We make a great effort on protecting environment; for example, we have been proposing "green travel"; private cars are not permitted to enter the company, except for senior managers, experts, national model workers and military representatives, who are our clients.

At the workshop level, each workshop has an environmental protection coordinator to deal with daily jobs. Waste treatment remains a focal point, and workers do quite well in this regard. Training is given following their recruitment, and follow-on training is continued on a regular basis. They are given narratives of consequences that are linked directly to the self-interests of workers. For example, *when wastewater is discharged to the river nearby, it is you and your family that will have to drink it*. Workers can be fined 100 yuan or 200 yuan if their misplacing of waste is discovered, and a critical notice will be circulated in the workplace. If a whole workshop is found to be acting against the guidance, the workshop will be penalized, whilst the person in charge will be warned, or even get fired, as stated in the Company Articles of Association from 2010. One of the interviewed workers gave an account of what had happened:

> One of my colleagues has been caught with pouring over emulsion to the floor recently, and he was fined with 200 yuan and circulated a notice of criticism; paying money is a small thing, losing face is a big thing.

On the final day of the data collection, the researcher was brought to the wastewater treatment station of a company that had been in operation since 2009. The station treats industrial wastewater, water from washing industrial wipes and mops, as well as fluorescent wastewater. The supervisor of the station explained:

> Environmental protection has been treated more and more seriously. The local environmental bureau has paid more and more visits to us. The company has attached more and more importance to us. Building this station has cost more than 400 million yuan, and we do the job according to the highest national standard.

Asked about whether the station would consider going beyond the national standard, they added:

> We do not have such equipment. Workers here have been switched from other jobs without professional training and are almost at the retirement age, so we have no idea about the function of new equipment; furthermore, we also need to consider price and cost.

Partners of Top Accountancy Firms

The partners of accountancy firms in the study all noted that it is the government's requirement for all listed companies to have an environmental impact assessment. Without passing this assessment, a company cannot be listed in the Chinese securities market. The accountancy firms, in light of this regulation, cannot arrange any services to listed companies until the assessment has been successfully completed. Additionally, since the companies' engineering and development projects must undertake these assessments, they cannot start work until the assessments are passed.

With regard to social responsibility reporting, three out of the five accountancy firm partners, during their interviews, noted that this, in practice, is not audited since there are no established auditing standards. Another partner said the following about auditing social responsibility reports:

> Mainly … from the text… to see if clients truly do it… if you say… to deeply examine it according to the auditing standards …now ...not often happening.

These accountancy firms do not provide consultancy services on social and environmental aspects since clients do not ask for them. One of the partners from a top accountancy firm said:

> If our clients ask us to help them improve their relevant policies, we will help them do; otherwise, we will not actively do this. Currently, the majority number of accountancy firms are taking the passive way to serve clients.

Two of the partners, however, showed interest in offering their services on social and environmental responsibilities, noting that this is seen as a brilliant business opportunity.

Local Governmental Officials

Both local governmental administrators who were interviewed explicitly acknowledged the value of environmental protection. They showed agreement that traditional Chinese culture is an important resource for underpinning the protection of the environment. They said nature needs to be respected and protected. Humans should live in harmony with nature, with an aim to achieve oneness between heaven and man. The Guangzhou official was quoted as saying:

> So now we are changing the way for the development of the economy and the economic structure. The economic development will more depend on innovations and high technology, aiming to achieve green, circular and low-carbon economic development model for sustainability.

The Peng Zhou official shared with us an example in which they shut down the biggest pharmaceutical company in their municipality. Even though this company produced a 400-million-yuan annual turnover, giving 100-million-yuan a year in tax to the local government, it caused serious pollution. The local

government subsidized 500-million-yuan for the closure and its environmental capacity was transferred to another company, Sichuan Petrochemical.

Professor Liang and University Students

Professor Liang, a specialist in environmental engineering, commented that environmental protection is indeed not an independent or isolated matter. It is instead a social issue whereby a small movement in one part may affect the whole system. Environmental protection, however, tends to be restricted by vested interest groups. He observed that *environmental protection governance by technology stays on the surface; more deeply, society as a whole has now become profit-driven, seeking nothing but profits*.

When asked about the reasons for choosing an environmental accounting module to study, three university students could not think beyond credit collection. Two other students thought that this subject sounded cutting-edge and significant. With regard to the contents of the module, all students reported that they were taught accounting and economic methods to solve environmental issues. For example, one said: *The lecturer introduces environmental assets, environmental liabilities… generally speaking, the environmental accounting elements are added with the word "environmental" before the accounting elements*. Another also commented:

> Today, we were taught with disposal costs and activity-based costing, which we have learned from the accounting modules before. In addition, we also discussed how to solve the wastewater issue, such as if you were a manager in a company, how you would solve this issue without the compromise of the economic benefits.

Exploration of the LOHO Project and Staff Interviews

Finally, to further trace the relations of holistic Chinese cultural thinking in sustainable business practices, interviews were conducted regarding the LOHO project, with the project founder Wang, and her assistant Lan.

The LOHO project was initiated in Da Ping Village, Tong Ji Town, Peng Zhou City, Sichuan Province, with the aim of implementing a low-carbon economy and a sustainable way of living. The project founder Wang had studied philosophy and was previously an enthusiast of Western thought. After contemplating a thesis on an ecological disaster written by one of her friends, Wang started to realize the seriousness of the issue. Yet she still believed that Western philosophy could find a way to solve ecological problems; *After all, the West had achieved a great economy so it must also have solutions to environmental problems*, she noted. She had yet discovered more and more of its problems, remarkably the high-energy-consumption lifestyle. Wang then turned to traditional Chinese culture, in which she reported that she found ecological wisdom. Wang began to think about how to manifest Chinese culture in an ecological civilization model in practice. Consequently, the LOHO project was established in August 2008.

According to assistant Lan, the way LOHO will achieve a low-carbon economy is *by satisfying people's needs rather than wants*. Villagers are consequently educated not to focus on material things, and instead, they are encouraged to value nature since nature and we are one. She argues that *systems thinking is embedded in traditional Chinese Daoist ideas and this combination helps villagers see the way to true happiness in life. That is, to enjoy nature, family and friendliness rather than focusing on material things*. In this way, the values of villagers have been gradually changed from an economic core to multiple values, leading to simple living and a low-carbon economy. Lan explained how the villagers lived by growing their own organic food and eco-tourism. She revealed to us a practical eco-civilization model based on traditional Chinese cultural thinking, as visualized in Figure 1.

In this model (Figure 1), *LOHO Dwellings* aims at functionality and simplicity, to optimize the housing area per capita, reduce energy consumption and carbon emission, whilst reserving land to build a rural ecological inn that is used for eco-tourism. The *LOHO Ritual Propriety* carries out a various forms of education on the "respect heaven and cherish materials" theme, imparting know-how about low carbon lifestyles and putting the understanding into practice. The spirit of *LOHO Health Care* focuses on building a lifestyle that conforms to nature, aiming at preventative treatments and reducing the need for chemical medicines. To increase *LOHO Livelihood*, funding sources are established to help ecological agriculture and ecological tourism. In terms of *LOHO Management*, a form of partner mechanism is used to govern villagers and to improve harmony within the village and between villagers and urban communities. Visual illustrations of this sustainable living model are shown in the following pictures of Da Ping Village, taken by the researcher (Figures 2 to 5).

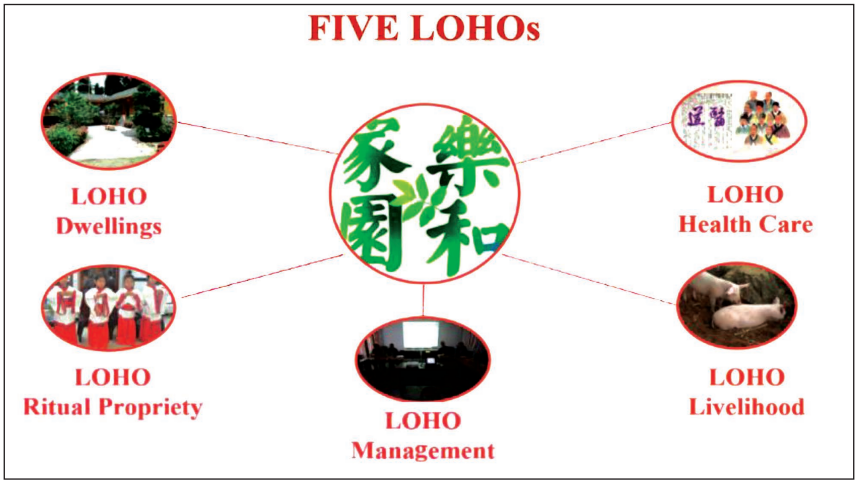

Figure 1. Five Life of Harmony (LOHOs) Project in Da Ping Village.

Figure 2. Da Ping Village.

Figure 3. Villagers and Their Eco-houses.

Figure 4. A Group of Tourists.

Figure 5. Local People Making Local Food.

Discussion

The research started with an understanding from the extant literature that systems thinking is required as a theoretical lens to map and navigate complex economic, social, and ecological environments, and to then enable businesses to advance the UN's 17 SDGs (Cechvala, 2024; Erzurumlu et al., 2023; Williams et al., 2017). We also posited that, conceptually, the implementation gap between systems thinking and sustainable practice is small in the case of China.

The research findings first confirm a clear awareness of the importance of environmental issues in China, from the Central Government to ordinary people. The government has constructed an eco-civilization based on traditional Chinese culture, aiming to recover harmonious relationships with nature, as well as between people and nations. However, although Chinese traditional thinking is promoted from top–down, it is not yet actively applied to translate into long-term sustainable development at this point in time. Our research still shows a gap between vision and practice within the firm-level operations, which means our prior proposition is not supported. As an implication of this result, there is not enough empirical evidence for Cechvala's (2024) conceptual view that the application of systems thinking can reduce the gap between desired outcomes and operational practice. Empirical research is therefore inconclusive, when this result is compared with Erzurumlu et al.'s (2023) inductive study of three firms, which shows that systems thinking can expand their sustainable practice as they address the profit-versus-impact conflicts.

Mismatch Between "High" Philosophy and "Low" Practice

We argue that the limited and superficial implementation of systems thinking in business practice has largely been in the form of "saving face" (Monkhouse et al., 2012). Jenkins (2002) differentiates between "high" Chinese philosophical traditions, extracting the essence of Chinese thought among the elite, and "low" traditions, which involve the popular practice of the masses. Our research findings show that the "low" form is indeed inherent in day-to-day practice in China, and the practice seems to be only up to the level that ticks the boxes of the regulations. Attaining sustainable goals through environmental protection is only on the surface rather than being intrinsic. The CEO of the showcase company only uses this as a means to enhance the "face" or public image of the company, which in turn brings them more profits. Workers do not want to be fined for not following environmental rules, as it makes them lose "face." Therefore, in this case, from the CEO to the workers, saving "face" is of great importance to them, rather than long-term environmental values. This notion here concurs with a note in the extant literature that keeping face is about the outer presentation, which could be at a superficial level (Monkhouse et al., 2012).

This "saving face" phenomenon is also discussed in Zeng et al.'s (2012) research, which empirically tests the factors that drive companies to divulge their environmental information, based on data from publicly listed manufacturers in China between 2006 and 2008. The conclusion, unsurprisingly, is that "organizational image/reputation" is the only variable that is demonstrated to significantly impact "both the act and the content of environmental information disclosure" (Zeng et al., 2012, p. 309).

Current Dominance of Economic-focused Thinking

Research findings reveal the materialistic nature of the current Chinese micro-economy, detached from the vision based on traditional philosophy. As noted by Professor Liang, environmental protection has been distorted in an economy that is still profit driven. Businesspeople even see this as a new opportunity

to make money. Accountancy firms see consulting services on environmental responsibilities as a good opportunity for financial gains. Several black industries have emerged to take advantage of the increasing number of environmental directives from the Central Government. Local people make money by handling foreign waste to the detriment of their living conditions and health. Local governmental officials for environmental protection use modern economic methods such as environmental capacity exchanges. The environmental accounting module for university students is taught on the basis of not compromising economic benefits.

Economic thinking, rather than systems thinking, still prevails in China in its current state as a result of the last few decades of hyper-economic growth. Dualistic and reductionist thinking, which focuses on economic values, diminishes non-economic values (Birkin & Polesie, 2012) and fails to recover the human–nature relationship (Lumsden, 2021).

Yet Evidence for Episteme Change: The Return of Traditional Chinese Thought

Nevertheless, the LOHO green living project demonstrates that the above-mentioned gap between sustainable vision and practice in China may just be temporary. The transition to systems thinking is already happening in China, albeit gradually, with a backward look to traditional Chinese culture and a forward look to multi-value development and sustainable lifestyles.

The LOHO project shows that knowledge and value change within China's eco-civilization can happen and is already happening. The systems thinking embedded in traditional Chinese culture helps change villagers' values and leads them to simple living. Villagers are educated not to focus on acquiring material goods but to cherish and protect them. The five LOHOs help villagers to transfer their values from solely economic to multiple-values. Achieving a low-carbon economy by changing people's values is recognized to be significantly more impactful than by using technology alone. The latter path only brings about cosmetic and superficial change, where high-consumption lifestyles and economic-focused aspirations persist. Meanwhile, changing values and lifestyles create harmony with the natural world, between people, and between nations. This deep change is an intrinsic form of sustainability, with which prosperity in all aspects may eventually be achieved (Birkin & Polesie, 2012). This is also the stated aim of China's eco-civilization (Wei et al., 2021).

Our overall research findings confirm the nature of episteme change, which is the long timeline it takes to transform people's knowledge and values (Gray, 2006). This change in China is gradually happening, rippling the impact from the "high" ideological level to the "low" day-to-day business practice level. Although the implementation of systems thinking in business practice is limited and superficial, the application of traditional holistic Chinese thinking is creating a step change away from reductionistic and anthropocentric thinking (Seiffert & Loch, 2005; Voulvoulis et al., 2022). The China's eco-civilization revolution, exemplified by the LOHO project, is a starting point to gear this major economy towards implementing systems thinking, which is indeed rooted in traditional Chinese thought. However, it still takes time to see the outcome of this episteme change, which involves the replacement of the current economic-focused thinking with the revival of Chinese values in a new context.

Conclusion

This study reveals insights into the current direction and practice of environmental protection among businesses in China, as well as an initial exploration of the impact of traditional Chinese values on sustainable business practices. There are certain limitations, most notably the challenge of discussing issues

that could be considered sensitive to some participants (the fear of losing "face," not fulfilling the required level of environmental protection as directed by the government). The sample size was deemed to be good, as we attempted to search high and low for clearer empirical evidence of a transition to systems thinking, as well as how this is applied to practice. Yet, our research proposition has not been firmly supported. Furthermore, there could be a more even distribution of key informants in order to get a more balanced view.

Systems thinking means that businesses need to enlarge their boundaries from narrow economic cores to encompass multiple values, including social and ecological ones, for sustainable development. The findings of this article indicate that systems thinking is embedded in Eastern cultural thinking, including that of the Chinese, and furthermore, that China's eco-civilization is grounded on such thinking. It is heavily promoted from top–down, but not yet actively applied by the micro-level economy in China to translate into long-term sustainability. The implementation gap is still large, not small as predicted.

This study also shows that businesses in China take social responsibility as being equivalent to sustainable development in order to show a responsible organizational face or image and reputation, which in turn brings more profits. Another reason is that businesses, particularly nationalized ones, must obey an increasing number of Central Government directives for sustainable development. Consequently, economic values remain at the core of Chinese businesses in the current state, which inhibit people's ability to see a holistic integration within a world of complex relations.

Meanwhile, however, the LOHO project is thoroughly based on traditional Chinese thinking and culture, and it shows that Chinese people can revive holistic, systems thinking, and move towards multiple values, although slowly and with difficulty. But as Mao Zedong said "[A] single spark can start a prairie fire."[1] We may finally conclude that holistic, systematic knowledge and value changes will eventually transform the whole of Chinese society and businesses and that sustainability in all its aspects will be achieved.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval and Informed Consent

It was ethically approved with consents of all participants. The participant consent included academic publication in anonymous format as in the manuscript. Data can be available for inspection upon request.

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Note

1. From a letter written by Chinese leader Mao Zedong to the General Lin Biao in 1930.

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Appendix A. Data Sources for the Study.

Interviewees	Pseudo Names	Gender	Age Range	Education	Workplace
CEO	None	Male	40–50	University	A state-owned company (manufacturing aero-engines for the national army)
CFO	None	Male	40–50	University	
17 intermediate managers	None	2 females, 15 males	30–45	University	
30 workers	None	5 females, 25 males	18–30	College	
Firm partner 1 and partner 2	None	One male, one female	35–45	University	A top international accountancy firm
Firm partner 3 and partner 4	None	Male	35–45	University	A national accountancy firm
Firm partner 5	None	Male	35–45	University	A provincial accountancy firm
Local governmental official 1	None	Male	50–60	College	Environmental protection bureau in Peng Zhou
Local governmental official 2	None	Female	45–50	University	Resource and environmental protection in Guangzhou
University professor	Professor Liang	Male	50–60	University	A university
15 students	None	7 males, 8 females	18–22	University	A university
Two LOHO staffs	Wang and Lan	Females	50–60	University	Life of harmony—LOHO project—charity, Sichuan

Note: CEO: Chief Executive Officer; CFO: Chief Financial Officer.