

# 3rd International Conference on Education, Environment, Arts and Social Science (EEAS 2026)

Article

## Localized Success, Institutional Failure: The Limits of the Self-Strengthening Movement in Late Qing China

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**Abstract:** This paper critically re-examines the historical trajectory of the Self-Strengthening Movement in late Qing China, arguing that it should not be understood merely as a complete failure, but rather as a localized technical success coupled with a profound institutional failure. Contrary to traditional narratives, Qing officials were not entirely ignorant of Western technology before the movement began. Early encounters with European science, the devastating defeat in the First Opium War, and reformist proposals by prominent figures such as Lin Zexu and Wei Yuan demonstrated a growing awareness of China's acute military weakness. Consequently, the Self-Strengthening Movement produced tangible achievements, including the establishment of the Ever-Victorious Army, the Jiangnan Arsenal, the Fuzhou Shipyard, and the Chinese Educational Mission. These ambitious projects successfully introduced Western weaponry, industrial production methods, naval construction, and technical education into China. However, these modernization efforts remained highly fragmented, heavily dependent on the initiative of provincial officials, financially unstable, and ideologically constrained by traditional bureaucratic frameworks. Ultimately, the Qing state modernized isolated components of its military and industry without transforming the fundamental political institutions required to organize, finance, and sustain modern state power. The disastrous Sino-Japanese War of 1894–1895 starkly exposed this inherent contradiction. Although China possessed modern warships and dedicated reformist officials, it critically lacked a coherent, centralized national system comparable to that of Meiji Japan. Therefore, the war's outcome revealed not the absence of reform, but the severe limitations of technological modernization without comprehensive institutional transformation.

**Keywords:** self-strengthening movement; late qing china; institutional reform; sino-japanese war; military modernization

Received: 12 April 2026

Revised: 19 May 2026

Accepted: 29 May 2026

Published: 04 June 2026



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### 1. Introduction

The defeat of Qing China in the Sino-Japanese War of 1894–1895 has often been used as evidence that the Self-Strengthening Movement failed. This judgment is understandable, but it is also too simple. By the 1890s, China had already spent three decades building arsenals, shipyards, modernized military units, and educational projects. Institutions such as the Jiangnan Arsenal, the Fuzhou Shipyard, the Beiyang Fleet, and the Chinese Educational Mission show that Qing officials were not completely unaware of Western power or unwilling to adopt Western technology [1]. The problem was not the absence of reform, but the limited nature of reform.

This paper argues that the Self-Strengthening Movement was a localized technical success but an institutional failure. It succeeded in introducing new weapons, ships, industrial projects, and forms of technical education. However, these reforms remained fragmented, dependent on provincial officials, financially unstable, and ideologically

restricted. The Qing state adopted many instruments of Western power, but it did not fully build the institutions needed to coordinate, finance, and sustain them [2].

To develop this argument, the paper first examines early Qing recognition of Western technology before the formal beginning of Self-Strengthening. It then analyzes the movement's achievements in military, industrial, and educational reform [3]. The third section explains the structural limits that prevented these achievements from becoming a national system. Finally, the Sino-Japanese War is used as a test case to show that China's defeat revealed not a lack of modernization, but the weakness of modernization without institutional transformation.

## 2. Recognition without Institutional Reform

### 2.1. *Early Contact with Western Technology*

China's problem was not a complete ignorance of Western technology [4]. Rather, the Qing state failed to transform scattered knowledge of Western science and military techniques into a sustained program of institutional reform. Long before the Opium War, Chinese elites had encountered European mathematics, astronomy, cartography, clocks, firearms, and artillery through Jesuit missionaries. Figures such as Matteo Ricci introduced European learning to Chinese scholars, while the imperial court sometimes employed Jesuits as technical advisers and interpreters.

However, this knowledge remained limited in function. It was treated mainly as courtly curiosity, diplomatic display, or occasional military assistance, rather than as the basis for systematic reform. The Qianlong emperor's response to the Macartney Embassy in 1793 illustrates this limitation. His rejection of expanded relations was not simply a rejection of science or technology. It reflected a worldview in which foreign objects could be accepted as tribute or curiosities, but not as evidence that China needed institutional change. Western technology was recognized in fragments, but it was not allowed to challenge Qing political assumptions [5].

### 2.2. *The Opium War and the Recognition of Military Weakness*

The First Opium War exposed the consequences of this failure [6]. British victory revealed not only weaker Chinese weapons, but also weaknesses in naval defense, coastal coordination, artillery, logistics, and knowledge of foreign powers. Steamships moved quickly along the coast and rivers, while British naval firepower made traditional defenses ineffective.

Lin Zexu's changing perspective demonstrates the shift from moral criticism to military recognition. Before the war, Lin approached the opium crisis mainly as a moral and legal problem. After defeat, however, he increasingly emphasized the importance of ships and guns. This shows that some officials understood the practical sources of Qing weakness. Yet Lin's exile also reveals the political difficulty of reform. Openly discussing military modernization could imply criticism of existing institutions [7]. The issue was therefore not simply a failure to see Western strength, but the danger of turning that recognition into policy.

### 2.3. *Wei Yuan and the Limits of Early Reform Thinking*

Wei Yuan's proposals further show that reformist thinking existed before the formal beginning of the Self-Strengthening Movement. His idea of learning the "superior techniques of the barbarians" called for China to study Western weapons, shipbuilding, geography, and maritime defense. He also recognized that China's limited knowledge of the wider world weakened its diplomacy and strategy [8]. These were practical proposals, not vague admiration for the West.

Yet Wei's ideas did not immediately become a national reform program. They remained proposals of scholars and officials rather than the foundation of centralized policy. Court conservatism, fiscal pressure, internal rebellion, and bureaucratic caution all limited immediate change. By the 1840s, some Chinese officials and scholars had already recognized the need to learn from Western military technology. However, recognition did

not produce institutional transformation. This gap between awareness and implementation became one of the defining weaknesses of the Self-Strengthening Movement.

### **3. Localized Achievements of Self-Strengthening**

#### *3.1. Military Experiments: The Ever-Victorious Army*

The Self-Strengthening Movement cannot be dismissed as a movement with no practical results. One early example was the Ever-Victorious Army, which was organized during the Taiping Rebellion with Western weapons, training, and foreign command [9]. Its importance lies not simply in the number of battles it fought, but in what it demonstrated: Western-style military organization could be effective on Chinese soil. Compared with many traditional Qing forces, the Ever-Victorious Army was smaller, better disciplined, and more tactically flexible. Its success suggested that China's military weakness was not inevitable; under different training and command structures, Chinese soldiers could fight effectively with modern weapons.

However, the army also revealed the limitations of early military modernization [10]. It remained small in scale and depended heavily on foreign officers such as Frederick Townsend Ward and later Charles Gordon. More importantly, it did not become the model for a nationwide reorganization of the Qing military. The Ever-Victorious Army demonstrated the effectiveness of Western-style training and weapons, but its limited scale and dependence on foreign command also revealed the difficulty of transforming isolated military experiments into a national army. In this sense, it was both a success and a warning: Western methods worked, but the Qing state lacked the institutional capacity to generalize them.

#### *3.2. Industrial Projects: Jiangnan Arsenal and Fuzhou Shipyard*

The same pattern appeared in the industrial projects of the Self-Strengthening Movement. The Jiangnan Arsenal and the Fuzhou Shipyard were genuine achievements because they demonstrated that reformist officials understood the importance of manufacturing weapons, translating Western technical knowledge, and training skilled personnel [11]. These institutions were not merely symbolic. They produced weapons, ships, translations, and technical specialists, marking a significant shift from simply purchasing foreign arms to attempting domestic production.

Yet these achievements remained limited. The Jiangnan Arsenal primarily focused on military production and was not part of a broader national industrial policy. It relied heavily on the initiative of provincial officials rather than a centralized state program. This dependency made its development vulnerable to local funding, political support, and the priorities of individual governors. While it strengthened specific regions and armies, it failed to establish a unified industrial system for the Qing empire [12].

The Fuzhou Shipyard exhibited a similar contradiction. It represented a serious effort to construct Western-style warships and develop naval and engineering talent. This was a significant step beyond passive reliance on foreign imports. However, the shipyard continued to depend on foreign engineers, imported materials, and external technical knowledge. Even when it succeeded in producing ships, it faced challenges in matching Western or Japanese standards in terms of cost, quality, maintenance, and long-term production capacity. The arsenals and shipyards of the Self-Strengthening Movement were notable achievements, but they fell short of creating an independent and integrated industrial-military system [13].

#### *3.3. Educational Reform: The Chinese Educational Mission*

The Chinese Educational Mission further demonstrates that some Qing officials understood the deeper requirements of modernization. Li Hongzhang and Zeng Guofan recognized that Western strength did not stem solely from machines and weapons, but also from education, science, engineering, and trained personnel. Sending students abroad was therefore an ambitious attempt to cultivate a new generation of Chinese

experts who could master Western knowledge directly rather than merely imitate foreign products [14].

However, the cancellation of the mission revealed a central contradiction of the Self-Strengthening Movement: the Qing state sought Western expertise but feared the cultural and political consequences of producing Western-trained Chinese elites. Officials worried that students might lose their Chinese identity or become overly influenced by foreign values. This fear hindered the development of a stable modern education policy [8].

These projects illustrate that the Self-Strengthening Movement achieved more than symbolic reform [14]. It established institutions, trained personnel, and introduced new technologies. Yet these achievements remained localized and incomplete, strengthening parts of the Qing state without transforming the state as a whole.

#### 4. Structural Limits of the Movement

The limits of the Self-Strengthening Movement cannot be explained simply by stating that conservative officials opposed reform [15]. While conservatism played a role, it operated through specific structural challenges: unstable financial systems, tensions between central and local authorities, technological advancements without corresponding institutional reforms, and rigid ideological boundaries. As Table 1 illustrates, these structural limitations clarify why the movement succeeded in producing arsenals, shipyards, and modernized units but failed to establish a cohesive national system.

**Table 1.** Structural Limits of the Self-Strengthening Movement

<b>Structural limit</b>	<b>What it affected</b>	<b>How it limited reform</b>
Fiscal instability	Navy, arsenals, modern armies	Reform required stable funding, but Qing finance remained vulnerable to court priorities, old military expenses, and crises.
Central-local tension	Provincial armies and industrial projects	The court relied on provincial officials for reform, but feared that successful modernization would increase their power.
Technology without institutional reform	Weapons, ships, training, command	The movement adopted modern weapons and machines, but not the institutions needed to organize them effectively.
Ideological limits	Education, bureaucracy, political reform	“Chinese learning as essence, Western learning for practical use” allowed limited reform but discouraged deeper institutional change.

##### 4.1. Fiscal Instability and Misallocation of Resources

Modern military reform required more than purchasing foreign weapons [16]. It necessitated continuous investment in ships, arsenals, ammunition, repairs, training, technical schools, and officer education. This was where the Qing state faced significant challenges. The issue was not solely corruption or individual resistance to change but the lack of a fiscal system capable of sustaining modern military reform.

Naval funding illustrates this issue clearly. A modern navy was not a one-time accomplishment. Warships required maintenance, crew training, ammunition supplies, and technological updates [17]. Without consistent funding, even an impressive fleet could quickly deteriorate. However, Qing military finances were unstable and influenced by competing priorities. Funds allocated for naval defense were often redirected to court expenses, public works, or older military institutions. The diversion of funds toward the

reconstruction of the Summer Palace highlights that modern defense did not have guaranteed priority within the Qing fiscal system.

This explains why the movement resulted in visible projects but failed to achieve sustained capacity. While an arsenal or shipyard could be established, both required long-term support to remain effective. In the absence of stable national funding, reform efforts relied excessively on individual officials and temporary political circumstances. Additionally, the Qing state continued to allocate resources to older military forces with limited relevance to modern warfare. The problem was not that Qing officials avoided spending on reform but that such spending was inconsistent, poorly coordinated, and disconnected from a unified military strategy.

#### *4.2. Central-Local Tension*

A second structural limit was the tension between the central court and provincial officials [14]. Many key Self-Strengthening projects were led not by a centralized reform ministry, but by powerful regional officials such as Zeng Guofan, Li Hongzhang, Zuo Zongtang, and later Zhang Zhidong. This was one source of the movement's success, as these officials were closer to military crises and more willing to experiment. They built arsenals, organized regional armies, negotiated with foreign powers, and supported technical education.

However, this was also a weakness. The Qing court relied on provincial officials to carry out modernization, yet feared that successful military reform would empower them at the expense of central authority. The Taiping Rebellion had already forced the court to depend on regional armies. Subsequently, officials such as Li Hongzhang held military, financial, and diplomatic influence that the court viewed with suspicion. Modernization therefore created a dilemma: the state needed strong provincial actors to reform, but strong provincial actors also posed a potential threat to imperial authority.

Li Hongzhang's Huai Army illustrates this contradiction. The court needed Li's forces because they were among the more effective and modernized units in the empire. At the same time, a fully strengthened Huai Army could have made Li too powerful. This helps explain why reform was often supported only partially. The court sought the benefits of modernization without fully accepting the political consequences of empowering reformers.

This tension prevented the creation of a unified national military system. Different regions developed distinct projects according to local priorities and resources. The Jiangnan Arsenal, Fuzhou Shipyard, and Beiyang military establishment were significant, but they were not fully integrated into a cohesive national structure. Reform efforts strengthened certain provinces and armies, but not the Qing state as a whole.

#### *4.3. Technology without Institutional Reform*

The primary weakness of the Self-Strengthening Movement was its focus on modernizing the tools of warfare without reforming the institutions responsible for organizing it. Efforts were concentrated on weapons, ships, arsenals, translations, and sending a limited number of students abroad. While these initiatives were significant, they represented only the visible aspects of modern power. Effective modern warfare also required comprehensive officer training, standardized recruitment processes, logistics, discipline, command structures, technical education, and stable administrative systems.

Although the Qing state adopted various Western technologies, it failed to fully reconstruct the institutional frameworks necessary to maximize their effectiveness. For instance, a rifle was only useful if soldiers were adequately trained to operate it. Similarly, a warship required skilled crews, maintenance facilities, ammunition supplies, and coordinated command systems. An arsenal could only contribute meaningfully if integrated into a broader industrial and military network. Without these institutional reforms, technological advancements improved isolated segments of the army or navy but did not transform the entire system.

This limitation explains why the movement appeared promising during peacetime but faltered under the pressures of war. Modern ships and weapons did not automatically

translate into a modernized fighting force. Some units benefited from improved equipment, while others remained poorly trained [5, 16]. Certain institutions generated technical knowledge, but the state lacked mechanisms to disseminate it consistently. Western strength derived not solely from advanced machinery but from the institutions that produced, financed, maintained, and organized these technologies effectively.

#### 4.4. Ideological Limits: "Chinese Learning as Essence, Western Learning for Practical Use"

The formula "Chinese learning as essence, Western learning for practical use" made reform politically acceptable. It allowed officials to argue that adopting Western weapons or machines did not mean abandoning Confucian values or Qing authority. In this sense, the formula protected reformers from accusations of betraying Chinese civilization.

Yet it also restricted reform. If Western learning was only "practical use," it could be accepted as ships, guns, machines, and translations. However, reforms involving education, administration, law, political institutions, or social values became more threatening. The state wanted Western expertise but resisted the broader institutional changes that produced such expertise.

This contradiction appeared in the cancellation of the Chinese Educational Mission. Sending students abroad demonstrated that reformers understood the importance of knowledge and training. However, fears that students might become too Westernized revealed the limits of Qing acceptance. The court wanted engineers and technicians but feared Western-trained elites who might not fit the traditional bureaucratic order.

Therefore, ideology did not simply block reform from outside. It shaped reform from within by defining what kinds of change were acceptable [1, 11]. Technical borrowing was acceptable; institutional transformation was considered dangerous. The limits of the Self-Strengthening Movement therefore lay in fiscal weakness, fragmented authority, fear of provincial power, and an unwillingness to reform institutions as deeply as it adopted technology. These limits explain why the movement strengthened parts of the Qing state but never transformed the state as a whole.

## 5. The Sino-Japanese War as a Test Case

### 5.1. Why the War Seemed Like a Test of Self-Strengthening

The Sino-Japanese War of 1894–1895 became the clearest test of the Self-Strengthening Movement because it came after three decades of reform. By the 1890s, Qing China had the Huai Army, the Beiyang Fleet, the Jiangnan Arsenal, and the Fuzhou Shipyard. These projects suggested that China had responded to the military weaknesses revealed during earlier conflicts such as the Opium Wars.

China's defeat by Japan was therefore especially significant. Before the war, China appeared to have major advantages: a larger population, greater resources, a closer position to Korea, and some modern military and naval forces. Yet the result was a rapid Qing defeat. This raises the central question: why did a larger empire with visible modernization projects lose to a smaller country that had modernized more systematically?

The answer is not that the Self-Strengthening Movement achieved nothing. Rather, the war demonstrated that China's reforms were not coordinated enough to sustain modern warfare. The Qing state had modern ships, weapons, arsenals, and reform-minded officials, but these elements were not integrated into an effective national military system.

### 5.2. The Army: Modern Weapons without Modern Organization

The Qing army demonstrates the distinction between possessing modern weapons and establishing a modern military structure [1]. China had some modernized forces, particularly the Huai Army, which benefited from superior equipment and greater exposure to Western-style organization compared to many traditional Qing units. Its existence highlights that Qing military reform was genuine.

Nevertheless, the Huai Army represented only a fraction of a much larger and inconsistent military framework. Many Qing forces remained inadequately trained,

poorly disciplined, and reliant on outdated military practices. The state continued to allocate resources to traditional forces with limited effectiveness in modern warfare, while modernized units were too few to define the entire army. This resulted in a fragmented military system where some units possessed modern equipment, but the army as a whole lacked standardized training, unified command, and dependable logistics.

Modern warfare necessitated coordination, not merely advanced weaponry. A rifle or cannon could not compensate for weak discipline, ineffective communication, and inconsistent command structures. The Qing army's defeat underscored that modern weapons alone could not overcome uneven training, fragmented command, and outdated military institutions. The army's shortcomings thus revealed a fundamental weakness of the Self-Strengthening Movement: it improved certain aspects of the military without transforming the institution as a whole.

### 5.3. *The Navy: Impressive Appearance, Weak Maintenance and Funding*

The Beiyang Fleet was the most visible symbol of Qing naval modernization. On paper, it appeared to demonstrate that Self-Strengthening had achieved tangible military progress. China had acquired modern warships and sought to establish a navy capable of defending its coastline.

However, a modern navy required more than just ships. It needed stable funding, regular maintenance, trained personnel, sufficient ammunition, technical support, and coordinated command structures. These were precisely the areas where Qing reforms remained inadequate. Naval modernization was often reduced to the acquisition of impressive vessels, while the institutional framework necessary to sustain them was underdeveloped.

Funding issues were particularly detrimental. The diversion of naval funds to projects such as the reconstruction of the Summer Palace was not merely an act of personal extravagance [11]. More significantly, it reflected the lack of prioritization of modern defense within Qing political agendas. If a navy's budget could be interrupted or redirected, the fleet could not maintain its modernity over time.

The Beiyang Fleet thus highlighted the disparity between appearance and capability. While it resembled a modern navy, it lacked the consistent institutional support required for sustained naval power. China did not merely lack modern ships; it lacked the comprehensive naval system necessary to support them.

### 5.4. *Comparison with Japan*

The Sino-Japanese War was also a comparison between two models of modernization: as Table 2 shows, Qing China adopted Western technology through regional projects and limited reforms, while Meiji Japan pursued a more centralized and systematic transformation of the state.

**Table 2.** China and Japan as Competing Models of Modernization

Area of comparison	Qing China	Meiji Japan	Significance
Military reform	Modernized units existed, but many older forces remained unreformed.	Reform was more systematic and nationally organized.	China had modern elements; Japan had a coherent military system.
Naval development	The Beiyang Fleet appeared powerful, but suffered from weak funding and maintenance.	Naval growth was connected to state-led modernization.	Naval strength depended on organization, not only ships.

Industrial support	Arsenals and shipyards existed, but were regional and unevenly supported.	Industry was linked to national military needs.	China's industrial projects were real but fragmented.
State coordination	Reform depended heavily on provincial officials such as Li Hongzhang.	Reform was more centrally directed by the Meiji state.	Japan mobilized resources more effectively.
Education and personnel	Technical education existed but remained limited and politically sensitive.	Education reform was broader and more institutionalized.	Japan developed a stronger base of trained personnel.

This comparison shows that Japan's victory was not only about better weapons. Japan had built stronger institutions to mobilize weapons, soldiers, money, and knowledge. Its reforms connected military organization, education, industry, finance, and state administration more effectively than Qing reforms did.

By contrast, Qing modernization remained fragmented [6]. The Huai Army, Beiyang Fleet, Jiangnan Arsenal, and Fuzhou Shipyard were important achievements, but they did not form one integrated national system. They depended on regional officials, unstable funding, and limited political support. The Sino-Japanese War therefore revealed not the absence of reform, but the limits of reform without institutional transformation.

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