

# A Case Study of East Asian Invention Censorship in the U.S. Education—Printing Press and Compass

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# **ABSTRACT**

The lack of appreciation for non-Western world cultures and histories plays a cardinal role in today's racial and ethnic hate crimes. Traditionally, much of the world history curricula in the United States' public school systems have a tendency to focus on the Western world, which includes Europe, America, and Oceania, with slight mentions of society beyond that are often from a Western perspective. This omission causes misunderstanding of significant contributions understudied civilizations have made on this world. This case study uses primary and scholarly secondary sources to provide insight into two major inventions from East Asia, often incorrectly overlooked as a product of Europe, by discussing their origins and where they stand today. Furthermore, the paper analyzes the history of world history education in United States classrooms. Inventions are the focus in this review because many people do not realize how lives may change, sometimes for the worse, if simple objects like paper money or navigational systems are stripped away. The misinformation of the origin of such inventions often brings disregard for their impact. When educators fail to identify these issues and orient their classes to the ever-present Eurocentric model, this cycle of misunderstanding continues. Diminishing the accomplishments of non-Western communities feed historical stereotypes of those cultures being uncivilized and unadvanced, ultimately acting as a catalyst for the social injustices prevalent today. Because of such inventions' direct effect on our lives, it is critical we look at them compared to other parts of non-Western world culture that have been censored.

#### Introduction

The study of the history of science focuses on scientific developments and inventions from prehistoric times to the present. Studying the scientific past allows individuals to recognize significant discoveries' origins and their evolution over time and how they have benefited society today. While a niche field to separately delve into, many primary, intermediate, and secondary schools in the United States may touch upon relevant material such as Thomas Edison's invention of the lightbulb, Alexander Fleming's discovery of penicillin, or even the creation of the wheel. Yet within history classrooms in the United States most of the focus of such inventions and discoveries is very Eurocentric, spending much of the class time discussing events from only the Western world's perspective, leaving barely any time for studies of non-Western civilizations such as Asia or the Middle East or even unintentionally providing misleading information to students. A writer noted that most students learn history "as a set narrative" (Atlantic, 2022). Ultimately, the world's past that involves so many events and cultures is crammed into several hundred pages for students to digest which reinforces an idea that history is uniform. However, this essentially contradicts the cardinal nature of history, for this field is meant to have multiple perspectives from several accounts rather than a single database that scholars consider to be the "standard."

Censorship in the U.S. Education

Professor Emeritus of history at California State University Henry Reichman defines censorship as "the removal, suppression, or restricted circulation of literary, artistic, or educational materials—of images, ideas, and information—on the grounds that these are morally or otherwise objectionable in light of standards applied by the censor" (Reichman, 1988). What must be emphasized here is that the censor may omit materials to which he or she considers unfit or appropriate to their own thoughts or opinions. Yet, the question shifts to is it ethical for an individual or a select group to determine what is released to the public, especially if what is being shared may be beneficial? Too many times in history have governments and figures of authority censored information, particularly forms of education such as books and what is being taught in the classrooms in order to establish uniform awareness of society in an effort to block out possible ideas and thoughts that could provoke actions that may undermine those in power. Such examples include censorship of Korean press and culture during Japanese occupation of Korea in World War II or book burnings during the Nazi regime. All these efforts were essentially made to manipulate what type of information was being released to the public to gain a monopoly of people's perspectives and thoughts. One particular case stands out due to its relevance to race and literature. The Dutch colonial government that had imperialized the Netherlands East Indies (modern-day Indonesia) had banned several pieces of literature that had tried or were published in the Indies. These Indonesian authors and publishers were never given unrestricted freedom to publish whatever they wanted and if there had been any opposition, local authorities threatened them with an entire arsenal of legal tools to subjugate them (Moore, 2015). The reason for this course for action, however, did not arise from the low-quality of the written works, for these pieces by Indonesian writers were of the same standard or even better than those of their European counterparts. Rather, the colonial government made great strides to censor this subject matter because of the truth of these pieces. A healthy majority of these writings had been non-fiction such as news articles where native Indonesians submitted works that often criticized the Netherlands state for their repressive nature and expressed desire to become an independent country. A high-profile journalist from Indonesia, Abdul Muis, produced many high-quality pieces only for it to be rejected by colonial publishers as "editorial suggestions" when in fact they were examples of censorship (Moore, 2015). Seeing that Mutis was also a political activist who was heavily vocal in the movement for the Netherlands to leave Indonesia, many officials were quite confused and troubled about what he could possibly spread to the natives and even outside the islands. Another

By controlling the literature that is being sent, and especially for the case of journalistic and non-fiction writing, whoever is censoring has the power to control the information that the public receives. On the same idea of censorship, one of the reasons as to why there is an unawareness of the origins of non-Western scientific inventions can be dedicated to the fact that because so many of the textbooks provided in U.S. schools are of British or United States publications, a chance for this omission or change of detail may be present. The issue with censorship in education lies to the fact that such leads to a sterile conformity complemented by a lack of intellectual and emotional growth. In March 1986, a U.S federal court acted as censor when a Mobile, Alabama, judge ordered the removal of 44 state-approved textbooks because they promoted secular humanism. The judge thought it separated church and state, but the US Court of Appeals reversed it in August of that year; this was because the textbooks were already state-approved (Reichman, 1988). Par the initial definition of censorship given before, just because the judge had a personal distaste for religion not being involved in the textbooks should not be the sole reason for such banning of books. In fact, former Supreme Court Justice William J. Brennan Jr. emphasized how "local school boards may not remove books from school library shelves simply because they dislike the ideas contained in those books" (Reichman, 1988). And while the previous anecdote was not a local school board member, it comes to show that unaligned beliefs is not enough justification to ban books that may contain valuable information. While there are some advocates for these causes, some educational materials that have a narrow viewpoint of the world are also equally state-approved. An approved world history textbook titled "World History for a Global Age" was infamous for displaying their Eurocentric perspective of the non-Western world. Yet because of the deeply rooted problems related to this issue, individuals



like a Longmont, Colorado grandparent say that they will "be damned if he set aside his ethnocentric attitude from what he's been taught in his time in class" (Reichman, 1988).

# **Case Study of East Asian Inventions**

# The Paper and the Printing Press

Paper has been one of the most useful inventions in history. With its extreme versatility, paper has found itself to be adapted into many different forms such as money or books-making. Figure 1 provides a timeline for the paper's origin, adaptation over time, and how it has been used in different areas of the world.

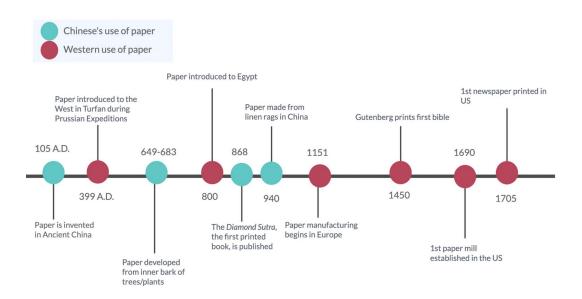


Figure 1. A timeline of the evolution and adaptation of the paper and its usage around the world.

Modern day paper is a thin sheet material made from wood pulp and or other fibrous substances from a tree. And while its original purpose had been to scribe religious texts, shifting from an oral tradition of religion to a written one, its uses have expanded to a wide spectrum today. One of the most popular applications and uses for paper have been for the printing press—a mechanical device that imprints ink onto a sheet of paper. The printing press had been a revolutionary invention, changing the scope of education and literacy as more people had access to books and as a result had a chance to receive an education that was absent prior to the printing press. However, despite the significance of such invention, there have frequently been many disputes or even misinformed ideas about the origin of the printing press. Many historical scholars have argued the notion that Johannes Gutenberg, a German printer and publisher, was the original creator of the printing press. Widely known for the Gutenberg Bible, far too many individuals have credited him as the sole father of printmaking and the printing press. However, there has been evidence that illuminates the discovery of paper and the use of printing in China far before its introduction to Western society. A historical scholar explained in his book that the probable date for the invention of paper was most likely 105 A.D. However, such dates are arbitrary as the road to paper and print-making had been a gradual process and not one that occurred in a single day (Carter, 1925). Paper had only reached Western civilizations in 399 A.D. in Turfan during the Prussian Expe-

ditions with paper filled with Buddhist canons, Christian literature, and Manichaean texts. China's first rendition of paper was made from the inner bark of plants and trees until 683. 940 marked the first time linen rags were used to make paper in China (The Connoisseur, 1888). Before paper and the printing press even reached European societies, its uses in China had already made a significant impact. Among the earliest known uses of paper besides for transcribing religious texts was wrapping delicate bronze mirrors, dating to the reign of Emperor Wu of Han from the 2nd century BCE. In the 6th century, toilet paper was also developed and soon after, the Tang had created small paper boxes to preserve the flavor of tea. Even before paper's spread to the West, its standing in leisure and social culture had already been popularized in China.

The core focus, however, of paper and printing was essentially for its religious and governmental purposes. Not long after 100 A.D. paper provided the first smooth and rough surface for printing on which the Chinese began to print woodcut texts and religious images (Mayor, 1964). And then when the printing press had been established, such texts were then mass produced and sent to hundreds of religious institutions in China. However, there had been some period of time in between the two as the first printed book, *The Diamond Sutra*, was only "printed at the Tzu-fu Temple of Chung-hsin Circuit in 1340 using black for text and red for prayers and a picture of the ling tzu plant" (Needham, 1985). Yet, from the government's perspective, the printing press was mostly used for the civil service exam. The civil service exam was the most difficult but important test that students could take to enter bureaucracy. Needless to say the exam was extremely difficult focusing on Confucian classics and less than a handful passed annually. Printing had made an impact, however, on the success of exam takers. "On the day before the examination, the readers presented drafts of their questions to the throne and, after obtaining imperial approval, turned them over to the grand secretariat for printing" (Miyazaki, 1981). The exams, due to printing, could now be mass copied and thousands of students could take it, giving more people the opportunity to enter the government—the most elite position in China at the time. Printing had greatly solved one of the civil service exam's issues: the difficulty of the content. The extremely small number of exam takers who passed had been accredited to how "printing had not yet become practical and hand-copied books were still both rare and expensive, thus restricting the number of men able to pursue scholarly studies" (Miyazaki, 1981). One could identify that prior to printing, only the wealthy upper-class could afford to fare decently on the exam due to the rare study materials they could acquire. However, with the printing press in place, study guides/materials were more widely available and those from lower-class families had the chance to finally escape their cycle of poverty. These sources not only substantiate that paper and printing originated in China but illustrate their social impact on the community before even reaching the greater Western world. In many cases, the printing press leveled the social class gap as well.

Unfortunately, many sources available online today do not properly give credit to China's magnificent creation. A Google Arts and Culture page on early printed books contains far too many factual errors. The author writes, "While paper was invented in China, Europe invented the movable-type printing technology" (Fondazione BEIC, n.d.). Additionally, the organization states that "Gutenberg assembled between 1452 and 1455 the matrices for the first book to be printed, the Holy Bible" (Fondazione BEIC, n.d.). First, for a credible source such as Google Arts and Culture to make such blatantly incorrect statements is shocking. However, when we look at the group who entered this database, it is an Italian literary organization. As mentioned before, when world history is only viewed from the European or American perspective, there are so many things that are omitted or manipulated incorrectly. Such a grave mistake was also done by the Massachusetts of Technology (MIT) on their article of the printing press. The author writes how "the printing press, invented by German goldsmith Johann Gutenberg in 1448" (MIT, n.d.). Not even acknowledging Chinese contribution or origin, they outright state that Gutenberg had discovered the printing press. Gutenberg had only modernized the system but he was never the sole creator. The issue with these misleading statements is that they are openly available to the public. Anyone could read these sources and be fed the wrong information which they could share to others. Unless such corrections are made, this cycle of misinformation will only continue to spread. But paper



and the printing press are not the only items that have fallen under such misfortune, for the navigational compass had a share of malfeasance as well.

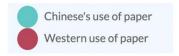
#### **Printing Industry Today**

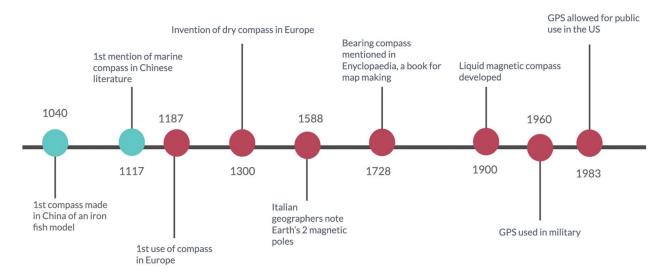
The printing industry has been present for centuries. Arising from the original moveable type from China to modern day newspaper printing, print has served as a method of mass communication. There are many forms of print such as book printing, pamphlet/brochure printing, and news printing. But despite its popularity in the past, there is a steady predicted decline that lies with this industry. The primary reason comes from the onset of digital media. Employment in this field has been slowly falling as well. A source notes that currently, the market size is estimated to be about 80 billion dollars with about 50,000 businesses in this area. After Covid-19, the print industry revenue decreased 3.4% in 2020 in the United States (CMS Mart, 2022), becoming the 14th largest industry in America. Additionally, half a trillion dollars is spent each year on media, both digital and print. However, only 10% is spent on global print marketing while a considerable amount is dedicated to digital advertising (Fischer's Technology, 2021). The primary cause of such an outcome was because of the accessibility that digital media allowed for consumers as lockdown procedures and other safety measures prevented people from going out to purchase print material. On the other hand, digital media has taken the world by storm not only post-Covid-19 but also with new concerns regarding the environment. In efforts to reduce waste and production pollution that the printing industry had contributed to, many have resorted to "greener" alternatives such as online news articles or E-Books. Research shows that since 2011, the number of printed book readers decreased from 72 to 65% in 2021 while the e-book or audiobook users increased from 17 to 30% (Pew Research Center, 2022). And while the overall percentage of people who solely read electronically is significantly less than that of those who rely on print books, this number corresponds to recent trends to a shift to a more environmentally-sensitive choice as well as one that resulted from the aftermath of Covid-19.

Although the print industry is not the juggernaut it once was, there are still many of those who rely on print material, which dives into the more psychological aspect. There is this human element that romanticizes the feeling of holding an actual copy of information in one's hands as opposed to scrolling through an article with a laptop or a tablet. Moreover, print media receive the credibility points as people prefer such due to the lack of "interruption media" such as ads as well as higher information retention rates (Fischer's Technology, 2021).

#### The Compass

The compass had revolutionized navigation and travel from the time it was first introduced to society. As an instrument that could guide voyagers to their intended destination, this compact device changed the definition of exploration and trade. Figure 2 gives a timeline from the compass's first introduction to the world and its evolution over time.





**Figure 2.** A timeline of the evolution and adaptation of the compass.

While the more archaic forms of the compass had simpler designs, the more advanced models that we know of today contained a single key element: lodestone. Lodestone is a special type of mineral rock, in the form of a dull, gray ore that attracts iron and also magnetizes it. Therefore, in its use as part of a compass, the lodestone gave travelers directions of the cardinal rose. This invention was a major advancement from previous techniques of exploration: analyzing the stars or studying migrating birds. But despite its prominence in cultures of the past and even today, like paper and the printing press, this device has constantly been under the discussion of its true origin with some sources confidently arguing that it was yet another product of Europe. An author on compass and maritime exploration writes how "the Chinese, centuries earlier than any mention of the fact in Western literature, were aware of the directional properties given to a metal needle when touched by a lodestone" (Gurney, 2004). The writer recognizes that such dispute is present regarding this instrument that he feels the need to explain that China had already realized of the useful navigational components of lodestone in 1040 before the West did. In fact, to further corroborate that the compass had been the child of China, the first mention of marine compass in Chinese literature was in the ea 12th century text *Phing-Chou Kho Than* by Chu Yu published in 1119 (Gurney, 2004). However, the first recorded use of the compass in Europe was 1187. The fact that China had already written about the compass' existence proves that its use had been known to the community prior to publishing and that was still before Europe's first known use of the compass. Another researcher writes that "the compass is an important invention of ancient China that reflects the ancients' emphasis on direction. The ancients used compasses in military affairs, navigation, and divination" (Guan, 2021). The Chinese had not only found use of the compass for navigation, but in other fields as well. The introduction of the compass to Chinese society had been in a very crude form of model fish heads on rods placed in a bowl of water on ships for maritimes voyagers to know the direction of their travel. Of course, this design had drastically improved shortly in regards to complexity of function and simplicity of design.

Well before the introduction of the compass in Europe, the instrument had made its way in daily life for the Chinese. One researcher noted that "early in the Han dynasty, between 300 and 200 BC, the Chinese

fashioned a rudimentary compass out of lodestone. [...] This compass may have been used in the search for gems and in the selection of sites for houses" (Lowrie, 281). Here, we see that while the compass maintained its navigational purpose, it was used not just for exploration but also for searching for different goods and riches that could be traded. In addition, what is fascinating is the use of compasses for good geographic land to build homes, which is quite similar to modern architectural techniques. Additionally, as mentioned before, compasses were also used in divination. Religious figures in China believed that these devices contained the ability to speak to ancestors and point the way to the future. However, the impact of the compass had been tremendous that soon, worlds outside of China were rapidly adopting this instrument to their daily lives. One described how "the immediate effects were most important in the Mediterranean. There the use of the compass went hand in hand with the creation of nautical charts of unprecedented accuracy... The immediate practical consequence in the Mediterranean of the invention of the compass was more navigation during winter months" (Lane, 1963). As could be assumed, regions in the Mediterranean probably had very ineffective forms of navigation. For an area where so much trade and maritime traveling was prevalent, it was imperative to have a good method or technology to locate different parts of the region, which was why the Mediterranean found so much benefit from the compass. Britain, many centuries later, found use of the compass and had enhanced it as well. British Admiral Sir Cloudesley Shovell recounts his use of the European designed dry compass in the 1700s, which were a newly formed version from the original compass that was submerged in water and alcohol (Gurney, 2004). Great Britain, a country well-known for their superior naval military, found use of the Chinese-invented compass and had evolved it to make better use to their own circumstances. These examples come to show the full extent and outreach that the compass had from its invention in China.

Yet, like other East Asian or non-Western inventions, these discoveries are often not properly credited, as mentioned before. Online history sources often have hesitation when mentioning the origin of the compass: "Whether it came from China or was developed independently in Europe, the compass finally came into use for navigation in the Mediterranean region in the late thirteenth century" (McCoy, 2017). Such doubt in the certainty of the origin of the compass only bleeds onto those who read these resources. However, it is not just independent writers who make such grave mistakes. Even museums dedicated to the field have also incorrectly stated where the compass had come from: "The first practical compass seems to have been made in Venice in 1274" (The Mariner's Museum and Park, n.d.). For an institution that is devoted to the study of maritime voyaging and navigation, to release this blatantly incorrect statement on the "Quick Facts" section highlights either how misinformed many people are or the Eurocentric view of other cultures outside of Europe.

## **Discussion**

# World History Education in the United States

As part of this evident censorship, some translate over curriculum in United States school districts, particularly in world history classrooms. Research has shown that over the course of the school system modernized by Horace Mann, much of the world outside of America and Europe has been omitted both purposefully and inadvertently. One found that "when the state of Massachusetts last updated the Social Science Framework in 2003 the world history standards were out of date - compartmentalized by region before 1800, overly western throughout, and ignorant of recent scholarship" (Greene, 2018). Yet even 15 years later, the proposed state standards were pretty much the same to which the author noted "as if the creators of the standards had not picked up a book of recent world history scholarship" (Greene, 2018). The textbooks in a particular Western Civilization course in Massachusetts showed that "out of the fifty suggested only seven are sources that would not show up in a traditional Western Civilization course" (Greene). This study corroborates how world history



classrooms in the U.S. are still lacking the "world" aspect despite the name of the course itself. What is supposed to encompass all spheres of the world typically ends up being a European World History class even after a considerable amount of time has passed.

Such omission, however, can cause a greater social issue seen in current events. One relates to hate crimes towards Asian American and Pacific Islander (AAPI) communities. One individual noted how she felt that "so many Asian elders have been targeted because of this stereotype that Asians are meek and quiet and don't speak up and don't say anything, and therefore that makes our elderly easy targets" (Waxman, 2021). She stresses the importance of bringing light to the achievements of Asian Americans through education in order to not repeat the same mistakes over and over again. Asian American makeup 6% of the population (22 million) but so "little of their story is taught in K-12 U.S. schools" (Waxman), highlighting the omission of the non-Western cultural appreciation. The interviewer further extends to how in response to recent movements such as Black Lives Matter or political leaders' racial statements, educators must call forth more teaching of the history of under-recognized groups in America. Because the U.S. does not have a national curriculum of history studies, most states' social studies textbooks only scratch the surface of Asian American history, if they even cover any in the first place. Most of the time, "curricula tends to focus on a few milestones" (Waxman). However, just studying these mainstream events like the Chinese Exclusion Act of 1882 do not give the full account of the Asian American story. Therefore, by recognizing this gap and by properly addressing heritages of communities from all over the world, there is a great possibility to combat the racial issues prevalent today and it becomes an urgent issue that needs to be resolved.

## **Conclusion**

Accurately recognizing the contributions that other civilizations beyond the West must be made a priority in today's United States world history classrooms. It is simply not enough to just mention mainstream non-Western historical events just to fulfill the requirements of a world history curriculum but to rather fully appreciate what other cultures have provided for society today. Many of the inventions that arose outside of Europe are one of the greatest aids to modern human life such as surgery, soap, batteries, and even calculators. Therefore, through this case study, we analyze two key creations from Eastern Asia (China), that have made great impacts in their time and even today but are often discredited by both credible and independent sources featuring these topics. Through the invention of paper and the printing press, China revolutionized communication and the sharing of education. One important outcome through the printing press was the greater accessibility of literature, which greatly increased literacy rates, allowing students from both upper and lower class families to take the imperial civil service examinations. On the other hand, the early compass also from China provided explorers and traders to navigate with ease, allowing different cultures to interact with each other for the first time. In the future, the crude compass would later evolve into technology that would support transportation beyond trade routes. However, when world history classrooms omit such an important factor to world history, students not just receive a missing half of the world's timeline, but they also engender thoughts that may not stand true. All because of this censorship in education that is still prevalent in the 21st century. The broader implication extends beyond the classroom. The broader implication of the consequences of such omission affects social justice issues. When we continue to ignore what other regions have developed in the past, not only do we undermine the complexity of their cultures but more importantly, we continue to circulate around the vicious cycle of the racial injustices seen today. Modern day racism stems from the belief that one's race is superior to another. As a result, he or she may come to believe that actions that express such superiority are justified. While simply studying about compasses or the printing press may seem unrelated to addressing today's racial problems, when people identify that modern day technology originated from all over the world, they will gain a better global perspective.



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