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AI, education and digital sovereignty

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Artificial intelligence (AI) is rapidly being embedded into all aspects of human life, reshaping everything from mundane daily human interactions to national military strategies. With AI technological capabilities limited to only a handful of parties, nations must grapple with the effects of relying on foreign technology on their own digital sovereignty, which is defined as a nation's ability to control its digital infrastructure, data flows, and epistemic frameworks. This paper traces the recent AI educational policies of China and the United States—the world's leading economic and technological powers. Analyzing state discourse, policies and governance between 2017 and 2025 this paper argues that the new AI race has revitalized the discourse on digital sovereignty. AI education is now a core feature of national security, workforce competitiveness and cultural sovereignty. This framing elevates AI from a tool of innovation to an instrument of geopolitical power, and places education, skills and capacity building at the heart of this strategic landscape.

KEYWORDS

artificial intelligence, digital sovereignty, national sovereignty, geopolitics, technology

Introduction

In 1983, Ronald Reagan's report, *A Nation at Risk*, highlighted the role of education in driving economic and political progress. Fast forward to 2025: education is once again a critical arm in the global race among superpowers. Artificial intelligence's rapid proliferation merged with its increased applicability in military technology, data analysis, and everyday life positions AI as potentially capable of shifting global power dynamics (Iqbal et al., 2023). While human capital theorists have long established the connection between education and the positive influence on national economies through innovation and increased productivity (Becker, 1964), AI education has now emerged as the new frontier for national sovereignty. In the digital age, sovereignty has emerged as a notion beyond the limits of territorial control or traditional military power and into the digital domain, where data infrastructures, technological standards, and epistemic frameworks increasingly shape national power (Couture and Toupin, 2019). The concept of digital sovereignty, defined as a state's ability to govern its digital assets, technologies, and the knowledge systems they produce, has become a central concern in global policy debates (Couture and Toupin, 2019).

While the legal, infrastructural, and economic dimensions of digital sovereignty have received considerable scholarly attention, the role of educational policy in securing it remains comparatively underexplored. This paper proposes that educational policy is a critical mechanism for asserting digital sovereignty. It does so by analyzing how two global powers, the People's Republic of China and the United States have used education systems to shape their technological futures and assert autonomy in the digital sphere. Methodologically, this study employs Stephen J. Ball's (1994) policy-as-discourse framework, which views policy not simply as a set of directives but as a discursive practice that constructs particular truths, subject positions, and social realities. Through this lens, the paper analyzes key national education

and AI-related policy documents from both countries, treating them as texts that reflect and shape state visions of sovereignty, technological capacity, and global influence.

The remainder of this paper is structured as follows. The first section explores the literature offering a variety of theoretical foundations of sovereignty and digital sovereignty and the implications of AI technology on both concepts. The second part describes the methodology and the third section conducts a comparative analysis of education policy in China and the United States. The final section draws out the implications of these findings and argues that that the new AI race has revitalized the discourse on digital sovereignty. AI education—which includes AI literacy, AI-assisted education and AI educational policy—is now a core feature of national security, workforce competitiveness and cultural sovereignty and therefore has become a strategic imperative for global powers.

Conceptualizations of sovereignty

The notion of sovereignty has been a topic of academic and political discourse since the 1,648 Peace of Westphalia which resulted in the notion commonly referred to as Westphalian Sovereignty (Krasner, 1999). This early model emphasizes the absolute authority of the state whose powers extend within its territorial borders while emphasizing non-interference by external powers and formalizing the idea of legally equal and autonomous nation-states. Building upon the early Westphalian conceptualization, variations emerged situated within realist, liberal, and constructivist paradigms. Realist definitions tend to emphasize sovereignty as the exercise of authoritative rule and territorial control, where the state has the ultimate authority to set and enforce legal frameworks (Krasner, 1999). Liberal theorists, by contrast, conceptualize sovereignty as an attribute derived from the consent of the governed, reflecting democratic legitimacy and the power of the public (Held, 2002). Constructivists offer a third perspective, understanding sovereignty as a socially constructed and dynamic concept shaped by international norms, identity, and intersubjective recognition (Lake, 2003). From this view, sovereignty is not simply a fixed legal status but a product of evolving social and political interactions within the global order.

Krasner (1999) offered additional conceptualizations of sovereignty including domestic sovereignty or the ability of a state to hold authority and control within its border and interdependence sovereignty or the capacity of a state to control the flow of information, people capital and goods across its borders. While Krasner also mentioned international legal sovereignty, Biersteker and Weber (1996) explained it as sovereignty as an attribute that is maintained by recognition from other states. Dependency theory posits that while some states can claim de jure sovereignty, they often lack de facto independence due to their reliance on external actors for financial assistance, defense, or governance functions (Velasco, 2002). While the lack of de facto independence can be forced, it sometimes can be intentionally and willfully ceded due to globalization and international economic forces (Smithin, 1999). This condition is particularly evident in weak or postcolonial states, where sovereignty exists more as an international label rather than a functional reality. Jackson (1990) describes this dynamic as nations being "quasi-sovereign" states as countries that possess formal legal sovereignty as recognized membership in the international community but without the institutional capacity, autonomy, or infrastructural power to act independently. This reliance can manifest economically, militarily, or administratively, where international organizations or foreign governments effectively nibble at national sovereignty.

Thus, this paper takes on a realist and Westphalian view of sovereignty defining it as the state's absolute authority over decisions within its national borders, free from external interference in military and economic domains and also the freedom to shape and preserve national values. In this view, sovereignty is beyond a legal recognition, but it is the capacity of the state to exercise autonomous control over its security, economic competitiveness, and national decision-making processes. Any form of external influence, be it through economic dependency or technological reliance can undermine the state's ability to act independently and is considered a breach of sovereignty.

Digital sovereignty and the age of AI

In the digital era, the concept of sovereignty has evolved to include control over virtual spaces leading to the emergence of what is now called digital sovereignty. The notion of technology posing a threat to national sovereignty can be dated back to the 1960s with the rise of international media and what some scholars saw as the imposition of western ideals facilitated by technology (Mirrlees, 2006). While some saw this through the lens of economic motivations, others described this phenomenon as a form of cultural imperialism, a widely refuted notion, but one that is separate from economic motivations (Sparks, 2012). The proliferation of internet technologies in the 1990s brought a renewed sense of fear over national sovereignty and concerns with the overreliance of foreign, particularly U.S.-based, technologies dictating the flow of data, platforms, and standards across borders (Pohle and Thiele, 2020). In 2013, with the release of Wikileaks by Edward Snowden, the fear became realized as matter of national security (Maurer et al., 2015). Thus, maintaining digital sovereignty now encompasses protecting national data infrastructure and storage systems from a range of emerging threats. These include the large-scale theft of intellectual property targeting high-tech and knowledge-based industries, the use of digital tools for extortion and misinformation, and the manipulation of social media platforms to disrupt democratic processes.

Additionally, growing geopolitical tensions have introduced new challenges, such as foreign-imposed export restrictions on critical technologies and unauthorized access by external powers to sensitive citizen data (Moerel and Timmers, 2021). This concept stands in relation to concepts such as digital expansionism, where dominant nations or corporations export their values and systems for ideological or strategic influence, and digital colonialism, where digital tools are used to extract data and economic value from less powerful regions (Wakanuma and Masika, 2017).

The emergence of AI has further exacerbated previous concerns of digital sovereignty and the control of nations on digital knowledge systems (Roberts et al., 2023). Economically, AI is projected to generate trillions of dollars in value potentially shifting global economic power dynamics (PWC, 2017). Yet, AI is not only a threat to economic independence. As AI applications extend to warfare, autonomous weapons and surveillance systems, nations have become increasingly aware of the notion that leadership in AI technologies will

have a direct impact on a nation's defense capacity (Calderaro and Blumfelde, 2022). Research shows that an increasing number of people now rely on chatbots for research, analysis, and decision making (Zao-Sanders, 2025). As a result, whoever controls these systems effectively holds a monopoly on knowledge, with the power to decide which information is amplified and which value frameworks shape global narratives. Thus, nations that lead in AI development will not only dominate economically and militarily but will also have the power to shape the flow of information, influence global norms, and the future balance of power (Iqbal et al., 2023).[1]

Mechanisms of preserving digital sovereignty

Countries have implemented a variety of mechanisms to preserve their digital sovereignty. These efforts were amplified following the 2013 Snowden revelations when countries introduced a variety of mechanisms to protect digital sovereignty including data localization measures and added infrastructure such as national sea cables (Jansen et al., 2023). More recently, countries have turned to regulatory governance models as a form of protection. In the European Union, concerns about foreign access to citizen data led to the development of the General Data Protection Regulation (GDPR) (Celeste, 2021). A 2025 study conducted a systematic literature review using the PRISMA methodology to identify mechanisms of protecting digital sovereignty. Eight mechanisms were identified: establishing strong data sovereignty laws, investing in digital infrastructure, supporting open-source technologies, enforcing ethical regulations, enhancing cybersecurity resilience, promoting digital literacy and education, aligning innovation with sustainable development goals, and fostering strategic public-private partnerships (Misra et al., 2025). These various mechanisms of preserving digital sovereignty can be seen through the NATO taxonomy of tools of governance (Hood and Margetts, 2007). Hood and Margetts (2007) describe governments as capable of utilizing four classifications of tools to enact change: nodality or the power of collecting and utilizing information; authority or power; treasure or the power to impose financial incentives or fiscal constraints; and organization or the ability to organize structures.

The link between education and sovereignty has been established in literature in various ways. A search for literature relating to education and sovereignty unveils a strand of literature that conceptualizes education as central to individual sovereignty through the lens of social justice (Anderson and Settee, 2020). Other studies have explored the role of education in fostering national sovereignty as a mechanism of decolonization and a tool for national development and the transmission of national identity and values (Mathalu and Waghid, 2019). While studies have established a link between education and sovereignty or have established education as a mechanism for digital sovereignty through an empirical synthesis of existing research, this paper advances the conversation by analyzing how education policy functions as a discursive tool through which states construct and assert digital sovereignty in the age of AI.

1 See Roberts (2024) for an alternative view on digital sovereignty.

Methodology

This article conducts a qualitative comparative policy analysis to examine how national education systems are playing a critical role in ensuring digital sovereignty. This study adopts a comparative case study approach, focusing on the United States and China. These countries were selected based on their global leadership in artificial intelligence development and their distinct governance models. China, with a centralized state-led approach, and the U.S., with a decentralized and market-driven system offer a compelling contrast for analyzing how education policy is mobilized to assert digital and national sovereignty. Their differing political economies, yet shared ambition to lead in AI innovation, make them analytically valuable for examining how education policy links with national sovereignty in the age of AI.

The study is based on document analysis, drawing from publicly available policy documents, national strategies on artificial intelligence and education, institutional reports, national press releases and secondary academic literature published between 2017 and 2025. Earlier pieces are also analyzed as part of the broader contextual analysis. Documents in Chinese are translated using google translate. Indeed, a key limitation of this paper is that it is solely based on document analysis and no new empirical data was captured.

The analysis is informed by Ball's (1994) conceptualization of policy as both text and discourse. This perspective treats policy as more than just a set of written directives, but as a product of ideological, political, and institutional forces that construct meanings, define priorities, and shape social realities. Ball's framework supports a critical reading of how policy texts articulate ambitions around innovation, education reform, and national autonomy in the context of rapid technological change.

China

China's approach to cyberspace governance and AI development is recognized as a deliberate assertion of national sovereignty (Hung, 2025). This intention is clearly reflected in multiple policy statements, with the first explicit reference to digital sovereignty dating back to 2010 with the release of their White Paper stating that "within Chinese territory the Internet is under the jurisdiction of Chinese sovereignty. The Internet sovereignty of China should be respected and protected." (Information Office of the State Council of the People's Republic of China, 2010). This reflected not only China's concern with digital sovereignty but the positioning of the State as a critical protector of virtual spaces.

In 2017, China released its New Generation of Artificial Intelligence Plan outlining the growing importance of AI capabilities and describing a plan to develop strategic leadership in this emerging technology. The plan stated,

> *"Artificial intelligence has become a new focus of international competition. Artificial intelligence is a strategic technology leading the future, and the world's major developed countries regard the development of artificial intelligence as a major strategy to enhance national competitiveness and maintain national security."* (State Council of the People's Republic of China, 2017).

The development plan highlighted the Chinese government's increased concern over digital sovereignty due to AI as it positioned AI leadership as a matter of economic competitiveness and national security. The same plan included the cultivation of AI talent as a strategic priority stating the nation would "improve the artificial intelligence education system, strengthen the talent reserve and echelon construction, especially accelerate the introduction of global top talents and young talents, and form a highland of artificial intelligence talents in China." Thus, the development plan placed human capital development through education at the forefront of the AI development landscape.

Following this statement, China made several strategic interventions to increase AI capacity and embed AI in its education system. In 2017, The Ministry of Education of the People's Republic of China published the IT Curriculum for Senior High Schools embedding within it elements related to AI. This curriculum reached 180 million students in 225,000 schools as teachers were mandated to attend specialized training programs in preparation for this change (UNESCO, 2022). In 2022, the Chinese government released an update on the Information Science and Technology curricula incorporating a unit on AI and Society for all levels beginning from primary to middle and high school students (UNESCO, 2022). This was also around the same time when China announced the launch of its Smart Education Platform, an integral component of the education sector's digital transformation plan, which aimed to achieve a variety of objectives including: supporting learning, teaching, governance, research, and outreach and cooperation, training graduates in job-seeking skills, organizing teacher capacity-building activities and provides support for the implementation of a variety of national policies and strategies (China Education Daily, 2024). In late 2024, China's Ministry of Education highlighted the critical importance of expanding the integration of AI into education through the release of guidelines on enhancing AI literacy in primary and secondary schools (Ministry of Education People's Republic of China, 2024). These guidelines promoted the teaching of AI related skills using a tiered approach of generating AI awareness in early grades and promoting the application of advanced technologies and project creation in later years. The guidelines also highlighted the critical importance of "an AI-Savvy teacher workforce" promoting targeted teacher training and teacher recruitment strategies.

In January 2025, China unveiled its new educational reform plans to help establish a "strong education system of socialism with Chinese characteristics" (The State Council People's Republic of China, 2025). The plan continued to state China's vision of a system which, "will feature powerful ideological and political leadership, talent competitiveness, scientific and technological underpinning, livelihood security, social synergy, and international influence" (The State Council People's Republic of China, 2025). By March 2025, it was reported that Beijing had mandated an average of 8 h of AI instruction across all K–12 schools (Asia Education Review, 2025) although confirmation regarding the extent of the actual enactment of this decision has not been publicly published. In May 2025, the Steering Committee for Basic Education Teaching of the Ministry of Education had released two new guidance on "Artificial Intelligence General Education in Primary and Secondary Schools (2025 Edition)" and the "Guidelines for the Use of Generative Artificial Intelligence in Primary and Secondary Schools (2025 Edition)" (Steering Committee for Basic Education Teaching of the Ministry of Education, 2025). These documents again established very clear guidelines on the incorporation and use of AI in education emphasizing the importance of teacher development by "[Incorporating] artificial intelligence teaching capabilities into the teacher training system, and [carrying] out general education training and special training at different levels." The guidelines also emphasized problem solving at the middle school level and innovation, critical thinking and creativity at the higher levels with explicit examples of how AI is applied in national strategies including defense. While these documents were technical guidelines, subsequent initiatives were developed in alignment to the published guidelines. For example, on April 27, 2025 the Ministry of Education announced via a press release that it had organized a training program targeting middle and primary school principals and education officials nationwide. The program was also live-streamed across the nation via China's National Smart Education Platform (Ministry of Education, 2025). As of 2025, China has expressed a plan to use The Smart Education Platform to deliver a range of teacher qualifications.

China recognizes the critical importance of education in AI innovation and ensuring digital and national sovereignty. Having a more centralized power over education, China is able to use authority and organization as policy tools. These include the establishment and implementation of explicit curriculum standards and mandated teacher training programs proliferated using technology.

The United States

A historical precedent for understanding how the United States has situated education policy as a tool for national sovereignty can be found in the United States' 1983 report *A Nation at Risk*. The report warned that the declining quality of American education posed a threat to the country's economic competitiveness and global leadership, famously declaring that the nation was "being eroded by a rising tide of mediocrity." Framed during the Cold War, this report positioned education as a matter of national security and international competitiveness. Some describe this as the first instance of education reform being catapulted onto national policy agendas as education became an important tool to ease geopolitical and economic tensions (Johanningmeier, 2010). In this view, education became a state instrument for shaping human capital and securing strategic advantages.

Following the development of AI, the United States had what began as a somewhat fragmented approach to integrating AI in education. At the national level, the Department of Education's Office of Educational Technology released a report on AI and the Future of Teaching and Learning (U.S. Department of Education, 2023). This report offered guidelines on ensuring AI is implemented in education in a matter which was safe, ethical and equitable. The report provided reassurance at the national level that teacher jobs were not at risk, and it promoted a human first approach to AI applications. This initial document positioned AI in education as an issue related to ethics, equity and maintaining workforce readiness.

Following that report, AI governance frameworks related to education varied from state to state. States such as Oregan and California issued AI in education guidance as early as August and September 2023 (California Department of Education, 2023; Oregon Department of Education, 2023). This guidance was broad, offering general insights on the benefits and risks of AI in education.

On October 30, 2023, the President released executive order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence (Biden, 2023). The executive order covered eight areas of overarching policy including safety and security, innovation and competition, and international leadership. The policy situated AI development as a matter of urgency for the sake of national security stating "The rapid speed at which AI capabilities are advancing compels the United States to lead in this moment for the sake of our security, economy, and society" (Biden, 2023). It furthermore highlighted the eclectic importance of AI stating, "AI reflects the principles of the people who build it, the people who use it, and the data upon which it is built" (Biden, 2023). In this executive order, education emerged as a critical mechanism for advancing AI leadership explicitly stating that the Department of Education shall:

> "Develop resources, policies, and guidance regarding AI. These resources shall address safe, responsible, and nondiscriminatory uses of AI in education, including the impact AI systems have on vulnerable and underserved communities, and shall be developed in consultation with stakeholders as appropriate. They shall also include the development of an 'AI toolkit' for education leaders …" (Biden, 2023).

By January 2025, only half of US states had released any statewide executive order pertaining to AI and education. On January 24, 2025, President Donald Trump released the executive order on Removing Barriers to American Leadership in Artificial Intelligence (Trump, 2025b). This executive order again positioned AI leadership as a matter of economic competitiveness and national security reaffirming the critical importance of the United States leading in the field.

It was not until April 23, 2025, that President Trump signed a federal executive order on AI in Education. As the executive order states, this was "*To ensure the United States remains a global leader in this technological revolution, we must provide our Nation's youth with opportunities to cultivate the skills and understanding necessary to use and create the next generation of AI technology*" (Trump, 2025a). This was a particularly significant positioning of education as a national priority for the Trump administration who had explicitly stated that education was a matter of the state (U.S. Department of Education, 2025). The 2025 executive order on AI in Education not only positioned education as a critical mechanism of ensuring AI leadership, but it focused on education's role in "preparing students to become active and responsible participants in the workforce of the future and nurturing the next generation of American AI innovators to propel [the] Nation to new heights of scientific and economic achievement" (Trump, 2025a). In order to support this initiative, the government allocated various funds for programs prioritizing the development of AI skills across formal and informal education spaces. In the formal space, the executive order set funds for programs which allowed high school students to earn dual credits and certifications through the attainment of higher education or industry aligned certifications. The executive order also allocated funds for the provision of grants related to workplace learning, apprenticeships and training opportunities focused on developing AI skills in less formal education space with the executive order explicitly identifying the opportunity for industry and philanthropic partnerships.

The federal US government does not hold jurisdiction over all US schools, colleges or higher education institutes. Therefore, the government cannot dictate curricula or textbooks for national proliferation. Despite this, the government has situated education as a critical lever in the race to AI leadership. The US's policy initiatives utilize a more nodality and treasure approach by incentivizing AI in education initiatives at the national level through grants and funds with a particular empowerment of industries. This strategy exemplifies the federal government's commitment to fostering AI education through incentive-based mechanisms, leveraging its capacity to influence and fund initiatives without direct curricular control.

Discussion

The comparative analysis of China and the United States reveals several similarities in the positioning of artificial intelligence as a core pillar of national sovereignty, underscoring its dual function as an economic asset and a national security imperative. In both contexts, AI is both a technological advancement and a strategic resource. This framing elevates AI from a tool of innovation to an instrument of geopolitical power, and places access to high quality education and AI literacy at the heart of this strategic landscape with the ability to potentially exacerbate educational inequalities (Bulathwela et al., 2024).

Educational policy in both countries is increasingly mobilized as a mechanism to assert digital and national sovereignty. Each has integrated AI priorities into education strategies to ensure alignment with national values and interests. Notably, both China and the United States emphasize the importance of promoting local cultural and ethical frameworks through AI, a move that reflects concerns over epistemic dependency on foreign technologies and ideologies. Education thus becomes a vehicle for encoding national identity within the algorithms and infrastructures that shape future societies.

Despite these similarities in vision, the operationalization of AI in education diverges significantly between the two systems due to differing governance structures. The United States' decentralized education system relies heavily on nodality and treasure by incentivizing the incorporation of AI in education. In addition, it emphasizes public-private partnerships, market mechanisms, and industry collaboration. This approach enables flexibility and innovation but also raises questions about coherence and equitable implementation across states. In contrast, China employs tools related to authority or a highly centralized model with top-down directives that prescribe specific curricula, learning resources, and digital platforms. This allows for rapid and uniform implementation.

Both systems identify teacher preparation and continuous professional development as a critical component of the success of AI integration in education. This shared recognition underscores the human infrastructure needed to realize technological ambitions and signals a global consensus on the centrality of educators in AI-driven educational reform. Whether through state mandates or collaborative ecosystems, the upskilling of teachers is seen as a prerequisite for embedding AI meaningfully and responsibly within learning environments. Indeed, studies show that only when successfully integrated, does technology enhance conceptual understanding and student engagement (Kefalis et al., 2025a; Kefalis et al., 2025b).

In sum, while China and the United States employ different methods and governance models, they converge on the strategic use of education policy to assert digital and national sovereignty. This

alignment highlights the increasingly inseparable link between technological governance and educational reform and suggests that any nation aiming to secure its digital future must treat education not as an adjacent sector, but as a foundational domain of sovereign strategy. The contrast between China and the United States provide a range of mechanisms for countries to employ as they navigate their own journeys toward digital sovereignty in the age of AI. Countries with more centralized jurisdiction can leverage more organizational and authoritative mechanisms by establishing national policies mandating AI integration, using government organizations to set national curricula and scaling teacher training initiatives aligned with national standards through the use of digital platforms. On the other hand, nations with less centralized authority can still utilize more nodality and treasure mechanisms to generate awareness on the importance of AI in education and incentivize the adoption and creation of AI in education initiatives by offering grants, funding opportunities, and fostering partnerships with industry and philanthropic organizations, thereby encouraging innovation and broader implementation without direct curricular control. Ideally, nations would employ a mix of methods to ensure AI in education initiatives are both equitable and coherent while equally innovative and industry aligned.

Drawing on Stephen Ball's (1994) conception of policy as discourse, education policy helps shape not only what students learn, but also how a nation positions itself in relation to technological change. It is through curricula, teacher training, and institutional reforms that governments articulate visions of national technological futures. From a human capital theory perspective (Becker, 1964), investing in AI-related education ensures a pipeline of domestic talent capable of innovating with, governing, and adapting to emerging technologies. Yet education also plays an epistemic role, offering nations a means of embedding local cultural values and ethical frameworks into their technological ecosystems thus education becomes a matter of economic, military and ideological sovereignty.

To summarize the U.S. and China's position, see Table 1.

AI education, digital sovereignty and policy reform are not limited only the U.S. and China but these discussions are occurring throughout the world, including the European Union (EU) and the African Union (AU). As early as March 2021, four leaders of European countries wrote a joint letter to the European Commission President Ursula von der Leyen about the urgency for digital sovereignty:

> Digital transformation is vital for European recovery, for the prosperity, security, competitiveness and the well-being of our societies….A significant amount of digital value-added and innovation takes place outside Europe. Data has become a new currency that is mainly collected and stored outside Europe. And fundamental democratic values are under severe pressure in the global digital sphere. Now is the time for Europe to be digitally sovereign. We have to foster the Digital Single Market in all its dimensions where innovation can thrive and data flow freely. We need to effectively safeguard competition and market access in a data-driven world. Critical infrastructures and technologies need to become resilient and secure. It is time for the digitization of governments in order to build trust and foster digital innovation. We want to develop our capacities and competencies in areas where we want to be more self-determined with democratic partners around the world and building on a strong transatlantic relationship (ERR News, 2021).

TABLE 1 Summary comparison of the U.S. and China.

Country	Approach to digital sovereignty	Approach to AI education
United States	Decentralized and market-led	Decentralized and uneven adoption across states with guidance and toolkits.
China	Centralized and state-led	Systematic national rollout with national guidelines and platforms and consistent uptake.

The EU's Artificial Intelligence Act (AIA) entered into force in August 2024 and in April 2025 they launched their AI Continent Action Plan which includes developing AI skills and infrastructure in the continent. According to the Action Plan, "Technologies play an increasing role in the global balance of power [and] AI is essential for our security and safeguarding our democracy" (European Commission, 2025a). Key components of the plan include establishing AI factories and gigafactories; AIA service desk to ensure smooth implementation of their policies; and an AI skills academy (European Commission, 2025b).

Strikingly similar discussions are occurring in the African Union. In July 2024 they released their Continental Artificial Intelligence strategy which:

> "…puts forward an Africa-centric, development-oriented and inclusive approach around five focus areas notably: harnessing AI's benefits, building AI capabilities, minimising risks, stimulating investment and fostering cooperation. It sets out a common vision for our Continent and identifies key policy interventions to enable the continent to harness the huge potential of AI while addressing the societal, ethical, security and legal challenges associated with AI-driven transformations. …. I urge African countries to accelerate the domestication of the strategy and implement its imperatives for the greater good of our continent and of our people." (African Union, 2024).

The strong emphasis on localization is also coupled with both collaboration and nationalization. In terms of the former, on the 21st October 2025 there was an AU-EU High-level Policy Dialogue on Science, Technology and Innovation: Artificial Intelligence in Science in Brussels to promote equitable, socioeconomic growth for both continents (EURAXESS, 2025). In terms of the latter there has been a surge in national AI strategies across the African continent with an emphasis on the data sovereignty and reducing dependency on foreign models where building local capacity is key (African Business, 2025). The dual track highlights how sovereign AI and national resilience are not necessarily mutually exclusive with global cooperation (World Economic Forum, 2024).

Conclusion

Artificial intelligence has been incorporated in National Strategies reviving national concerns over digital sovereignty. These strategies have positioned AI leadership as not only a matter of economic

competitiveness but a matter of ensuring national security and maintaining a cohesive national identity. Thus, nations seeking to lead in AI innovation must recognize education policy as a pivotal catalyst. The experiences of China and the United States underscore that AI leadership transcends technological infrastructure; it necessitates a comprehensive educational strategy that aligns technological advancement with national values and sovereignty.

Introducing AI education at the K-12 level is essential for cultivating a domestic talent pool able to both use and innovate in the new AI landscape. This approach ensures that future generations are equipped with the critical thinking and problem-solving skills required in an AI-driven world. Moreover, embedding AI curricula that reflect and uphold cultural values is crucial. Such curricula not only preserve national identity but also promote ethical AI development tailored to societal norms.

China and The United States have recognized the critical role of teacher education in the educational reform process. Educators must be provided with both pre-service and in-service professional development opportunities to effectively deliver AI education. This includes training in AI concepts, pedagogical strategies for teaching complex technological subjects, and methods for integrating AI tools into the classroom.

Ultimately, while technological infrastructure lays the groundwork for AI advancement, it is the strategic integration of AI into education systems that will drive sustained innovation and maintain technological and national sovereignty. By prioritizing education policies that promote AI literacy in alignment with national values, countries are attempting to ensure that their investments in AI yield long-term benefits including economic competitiveness, national security and sustained sovereignty.

In terms of policy recommendations for the education side, this paper argues that AI literacy in education—at all levels, primary, secondary and tertiary—must be taken with caution and rigorously and regularly assessed. There are recent studies that show that introducing AI could lead to dependence on these tools and a decline in core skills, such as basic reading, writing and critical thinking (Chow, 2024). It is crucial not to be blind sighted in the global race for AI dominance. As seen in the case of Sweden which is undergoing a major educational policy shift reducing digital devices and instead going back to physical books, reading and handwriting (The Guardian, 2023). This was after they witnessed a drop in foundational skills particularly reading comprehension. In terms of policy recommendations for digital sovereignty, we would recommend diversification of data centers and digital infrastructure. The October 2025 Amazon Web Services outage impacted millions of people disrupting banking apps, government services, healthcare systems, airlines and smart home devices underscoring the significant problem of dependency on one major technology company (McMahon, 2025). This has emphasized the issue of "nested dependency" (Deslandes, 2025) and the crucial need for a multi-cloud, multi-regional and localized failover-ready systems for national digital resilience (Kempenfelt, 2025).

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