

# A NEW FRAMEWORK FOR MANDARIN LANGUAGE EDUCATION IN PREK-GRADE 12 SCHOOLS IN THE UNITED STATES

## EXECUTIVE SUMMARY

We are now in the midst of the [Fourth Industrial Revolution](#). The advent of digitization and technological innovations such as smart systems, 3-D printing, big data, cloud computing, and generative Artificial Intelligence (AI) have propelled us into this dynamic, changing world. Simultaneously, we are experiencing the disruptive forces of climate change, COVID-19, mass human migration, the breakdown of supply chains, an unstable global economy, and the yearning for social justice and a more diverse, equitable, and inclusive society. Our lives, work, and communities have been, and continue to be, transformed.

Human capacity development must respond to these profound changes and proactively anticipate the needs of local and global economies and socio-cultural shifts. Nations are grappling with the ensuing demand for the development of skill sets that are beyond our imagination and the enhancement, repurposing, and transformation of existing skill sets. This includes critical thinking, problem solving, communication, collaboration skills, openness for lifelong learning, and discipline/industry-specific knowledge and skills.

Building on the definition of global competence (Boix Mansilla & Jackson, 2023) and taking a language ecological perspective, this paper proposes a new framework for situating Mandarin Language Education in today's rapidly changing world and directs attention to the purpose (the why's), process (the how's), and product (the what's) of language learning. This paper speaks primarily to school and education leaders and parents in local communities who, as grassroots decision-makers, are the drivers of educational programming across the United States. The New Framework for Mandarin Language Education includes the following:

### A. PURPOSE OF LEARNING

1. For developing human capacity through learning the linguistic, socio-cultural, and social-emotional codes of another human communication system
2. For self-discovery, exploration, and forming and affirming one's fluid identity in different groups and contexts
3. For developing multiple literacies for being in and interacting with the world
4. For developing and enhancing cognitive skills and executive functions
5. For connecting human beings as stewards of our shared planet
6. For securing a healthy, happy, and productive future for oneself amidst challenges and changing forces

### B. PROCESS OF LEARNING

1. Recognizing the process of learning a language as a process of cognitive development
2. Fostering social-emotional development, positive relationships, empathy, and active listening skills
3. Approaching the acquisition of Chinese characters via the route of cognitive skill development
4. Understanding that linguistic skills and content knowledge between languages are reinforceable and transferable
5. Acquiring learning strategies and metalinguistic awareness about learning and developing an attitude for lifelong learning

**6. Fostering a “can-do” attitude for growth and grit****C. PRODUCT OF LEARNING**

- 1. Attaining at least a functional level of proficiency and literacy in Mandarin for social communication**
- 2. Earning the State Seal of Biliteracy or Global Seal of Biliteracy for proficiency in English and Mandarin**
- 3. Gaining knowledge of Asia, including its cultures and people**
- 4. Developing higher rates of biliteracy, educational achievement, and cognitive development**

The framework applies to all World Language Education in the U.S. context. Although the discussion and strategies are Mandarin-specific, other languages may develop their own narratives. This paper also suggests ways of designing and implementing Mandarin language programs in local communities. Strategic plans include:

**1. Visioning****2. Employing Mandarin NOW as the Guiding Principles:**

N: Networking and Experience, O: Opportunity to Learn, W: World Applications

**3. Setting Goals****4. Leveraging Resources****5. Prioritizing Actions**

The United States and China must collaborate with each other and other nations to ensure the planet’s peace, health, prosperity, and sustainability. One of the fundamental tools of engagement is to have the ability to communicate accurately, efficiently, and successfully. With AI and other technological advancements, the upper hand will be given to those who can decode languages and meanings and be agile in their responses. The decision to promote these skills and seize their advantages is one legacy that educators and policymakers can leave for children in their local communities.

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The Asia Society aims to navigate shared futures for Asia and the world across policy, arts and culture, education, sustainability, business, and technology. The Asia Society fosters insight, encourages engagement, elevates regional voices, informs and educates new audiences, addresses complex – and where necessary – contentious challenges, engages in creative problem-solving, and helps deliver real solutions for the benefit of all. As a global network of centers with a common vision, we actively collaborate with our centers and partners across Asia and the world.

Asia Society Education is committed to our mission to develop global competence in students, young leaders, and educators as the foundation for understanding between people in the US, the Asia Pacific region, and throughout the world. Our vision is that in an interconnected global era, all youth from all countries and cultures will have the capacity to create, participate in, and benefit from a peaceful and prosperous world.

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## 1. INTRODUCTION

We are now in the midst of the [Fourth Industrial Revolution](#). The advent of digitization and technological innovations such as smart systems, 3-D printing, big data, cloud computing, and generative Artificial Intelligence (AI) have propelled us into this dynamic changing world. Simultaneously, we are experiencing the disruptive forces of climate change, COVID-19, mass human migration, the breakdown of supply chains, an unstable global economy, and the yearning for social justice and a more diverse, equitable, and inclusive society. Our lives, work, and communities have been, and are continuing to be, transformed.

The development of human capacity must not only respond to these profound changes but also proactively anticipate the needs of local and global economies and socio-cultural shifts. Nations are grappling with the ensuing demand for the development of skill sets that are beyond our imagination and the enhancement, repurposing, and transformation of existing skill sets. The following report reflects this need:

By one popular estimate, 65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist. In such a rapidly evolving employment landscape, the ability to anticipate and prepare for future skills requirements, job content and the aggregate effect on employment is increasingly critical for businesses, governments and individuals in order to fully seize the opportunities presented by these trends—and to mitigate undesirable outcomes ([The Future of Jobs, World Economic Forum](#), 2016, p.1).

The [2023 Future of Jobs Report \(World Economic Forum Report, May 2023\)](#) provides detailed lists of core knowledge, skills, and abilities demanded by global labor markets in 2023 and forecasted across the 2023-2027 time-frame. The findings represent the perspective of 803 companies — collectively employing more than 11.3 million workers — across 27 industry clusters and 45 economies from all world regions (p.5). While the “hard core skills” for specific industries vary, there is a consensus on the “soft skills” across industries.

In particular, across a wide range of research into the future of work by the World Economic Forum and other organizations, employers are not only signaling demand for creativity, critical thinking, problem solving and skills relating to the development and use of technology, but are placing more and more emphasis on interpersonal and socio-emotional skills. The latter include the ability to collaborate, coordinate and communicate effectively with others. The role of education should be to prepare young learners for this future.

With the growth in demand for these skills comes the need to adopt a holistic learning approach that includes not only concrete skills for economic success, but attitudes and values that set individuals up for a lifetime of learning (p. 4, [Defining Education 4.0: A Taxonomy for the Future of Learning, White Paper, January 2023, World Economic Forum](#)).

This view on the importance of critical thinking, problem solving, communication, and collaboration, in addition to discipline-spe-

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cific knowledge and skills, is echoed by [Partnership for 21st Century Skills](#). Similarly, in [Educating for Global Competence: Preparing Our Students to Engage the World \(2023, 2nd Ed\)](#), Boix Mansilla and Jackson argue that education must prepare students for a world on the move, environmental stewardship, unprecedented digital global connectivity, and the new global economy (pp. 10-20). They propose global competence as “a framework that puts needed skills to the service of nurturing every young person’s human potential and advancing more inclusive and sustainable societies. Such a framework views students as prioritizing *the kind of person the student might become*” (pp. 21-22).

Based on the [OECD Global Competence Framework](#), they define the four dimensions of global competence: (1) Examining local, global, and intercultural issues; (2) Understanding and appreciating the perspectives and worldviews of others; (3) Engaging in open, appropriate, and effective interactions across cultures; and (4) Taking action toward collective well-being and sustainable development (pp. 23-27). Underlying the conceptual framework is the notion that global competence is evolving, dynamic, and humanistic. Its central concern is the connection with and improvement of a human community and its condition. It invites all to participate in growing together.

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Building on the definition of global competence outlined above and taking a language ecological perspective<sup>1</sup> (Haugen 1972; Hornberger, 2003; Wang, 2008), this paper proposes a new framework for situating

Mandarin Language Education in today’s rapidly changing world and directs attention to the purpose (the why’s), process (the how’s), and product (the what’s) of learning a language. It provides suggestions for developing a strategic plan to establish or enhance Mandarin programs. It also offers a set of guiding principles for rethinking the goals and characteristics of Mandarin language programs. The arguments and strategies are Mandarin-specific, but are applicable to all World Language Education (traditionally called Foreign Language Education) in the U.S. context. (See [Agudo, April 6, 2021](#)).

## 2. PROPOSING A NEW FRAMEWORK FOR MANDARIN AND WORLD LANGUAGE EDUCATION

The prevailing language learning paradigm in the second half of the 20th century has focused on outcomes and economic utility, i.e., learners’ proficiency or ability to speak, understand, and use the language to advance their studies or work. The new paradigm we advocate for continues to value language-learning **products**. Multilingualism is an essential tool for the workforce in the global economy to communicate and collaborate. It is a critical component in global competence because many of the actions in the four domains — examining issues, understanding multiple perspectives, exchanging ideas, and developing an action plan — can only be carried out with an effective communication tool. Machine translation is a click away but cannot replace human agency in these interactions.

On the other hand, taking an ecological view of learning, the new paradigm advocates for valuing the **purpose** and **process** of language learning, as well. Learners need to have clear purposes and goals to situate learning in the service of developing their human potential

<sup>1</sup> In the field of language planning and policy, Haugen first proposed a comprehensive framework of the “ecology of language” (1972, p. 205), which he defines as “the study of the interactions between any given language and its environment (1972, p. 325).” Hornberger (2003) synthesized the three themes related to language ecology; i.e., environment, evolution, and endangerment. A language ecological perspective calls attention to the environments and the evolutionary processes in which a language interacts with different groups and players, policies, languages, cultures, powers, and societies in which it is situated. See Wang, 2008; 2011 for details about the ecology of Chinese Language Education.

The framework applies to all languages. The discussions and examples here are Mandarin-specific, but other languages may develop their arguments under each pillar.

and advancing a more equitable and just society, as Boix Mansilla and Jackson (2023) have argued. Learners must also value and be intentional of the learning process through which they develop cognitive and social-emotional skills, empathy, and intercultural competence, in addition to linguistic ability. Putting the three pillars of learning together, learners enjoy the benefit of multilingual literacy and develop the habit for lifelong learning. The three pillars of Language Education Framework, including those of Mandarin, are shown in the graphic.

The three pillars – the purpose of learning, the process of learning, and the product of learning – are intertwined and mutually influential to one another. The framework applies to all languages. The discussions and examples here are Mandarin-specific, but other languages may develop their arguments under each pillar.

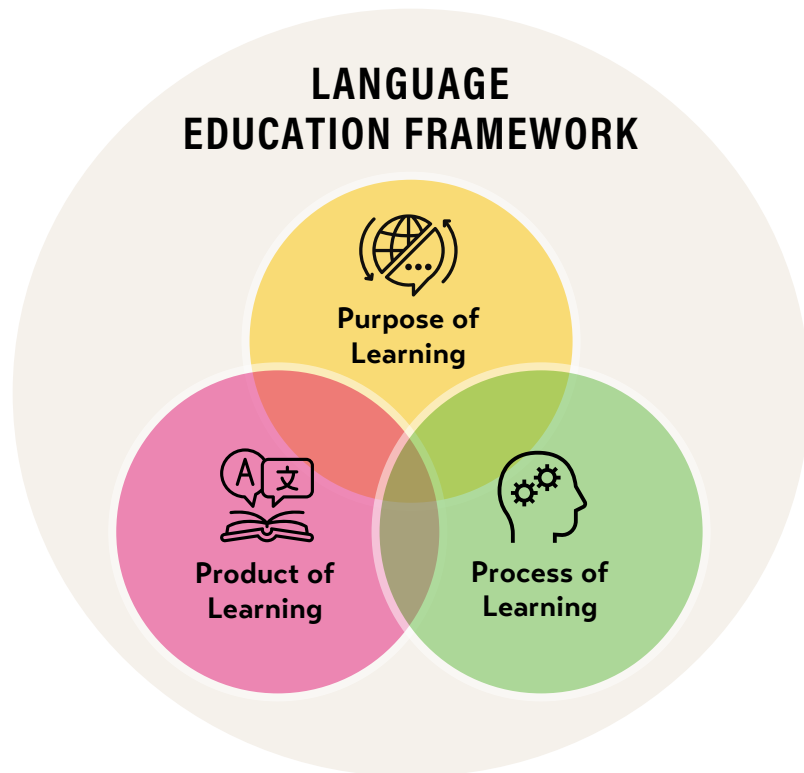
### 3. THE NEW FRAMEWORK FOR MANDARIN LANGUAGE EDUCATION EXPLAINED

Mandarin is a logical world language choice for PreK- Grade 12 students in the United States because of its implications for the purpose, process, and product of learning in these shifting times.

#### A. Purpose of Learning

**1. For developing human capacity through learning the linguistic, socio-cultural, and social-emotional codes of another human communication system.**

Machine translation is highly accessible, but it cannot yet connect human beings in a nuanced or emotional way. With multilingual global competence, individuals are more able and willing to engage with one another with their minds and hearts.



While learning about “others,” one’s language, culture, ideology, emotions, values, perspectives, and identity are concrete reference points.

**2. For self-discovery, exploration, and forming and affirming one’s fluid identity in different groups and contexts.** While learning about “others,” one’s language, culture, ideology, emotions, values, perspectives, and identity are concrete reference points. As the Mandarin language and Chinese culture are vastly different from those of the United States, learners have the opportunity to explore their identities while comparing and contrasting both languages and cultures.

**3. For developing multiple literacies for being in and interacting with the world.** While learning Mandarin and Chinese cultures, learners become aware of the cultural perspectives beneath the achievements or products (the big C Culture) and practices of everyday life and special events (the small c culture) ([World-Readiness Standards for Learning Languages, ACTFL](#)). They understand what it means to be Chinese for native and non-native Chinese speakers and affirm their understanding and appreciation of what it means to be American. Other literacies developed through studying Mandarin include biliteracy/multilingual and content-area literacy (such as math, science, technology, arts, social studies, and so on), especially if the program is immersion<sup>2</sup>.

**4. For developing and enhancing cognitive skills and executive functions** such as long-term and short-term memory, reasoning and logic, analyzing, creativity, problem-solving, multitasking, and prioritizing. As the World Economic Forum

(WEF) reports explain, cognitive skills and creativity have become an education premium. Nevertheless, we have continued to undervalue the relationship between language and learning. As Michael Halliday says, “[A]ll learning — whether learning language, learning through language, or learning about language — involves learning to understand things in more than one way” (Halliday, 1993, p. 112). Learning multiple languages expands the linguistic parameters and reinforces the understanding of meaning cumulatively. Brain research provides evidence of the relationship between language and learning and demonstrates that proficient bilinguals have higher cognitive and executive functions than monolinguals (Bialystok, 2015; Giovannoli, et al., 2020). (Also see Process of Learning below.)

**5. For connecting human beings as stewards of our shared planet.** We face unprecedented challenges at local, regional, and global levels, such as war, health insecurity, climate change, mass human migration, food scarcity, unequal access to quality education, and social inequality and injustice. As world superpowers, the United States and China are expected to provide leadership in international coordination and collaboration. Language proficiency and global competence are the essential tools to effect change.

**6. For securing a healthy, happy, and productive future for oneself amidst challenges and changing forces.** Young people worldwide need multilingual and global competencies

<sup>2</sup> In the K-12 education sector of the United States, Mandarin language programs may be Mandarin as a World Language or Mandarin immersion programs. The latter can be further divided into general immersion (with different percentage of instructional time in Mandarin) or dual language immersion (50 percent of instructional time is in English and the other in Mandarin). See [Wang, Harvey, & Peyton, 2021, p.2](#) for details.

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## B. Process of Learning

Here, we suggest ways to study Mandarin to cultivate and reap the cognitive, school-subject-matter, social-emotional, and cultural benefits of language learning. Effective Mandarin language programs, including those in an immersion setting, honor the following processes:

- 1. Recognizing the process of learning a language as a process of cognitive development.** As discussed above, language manifests human cognition. So far, the language education field has focused on the product of learning, not calling enough attention to the process and the deep benefits of language learning on the human brain. With the availability of AI and many other digital and technological tools, the efficacy of human language and cognitive development in formal, informal, self, school, and virtual contexts may be enhanced. Likewise, the more we can understand how language is learned, used, and created, the more this can contribute to the development of the AI field.
- 2. Fostering social emotional development, positive relationships, empathy, and active listening skills.** Through activities such as brainstorming, role plays, interviews, opinion polls, and skits, learners build interpersonal relationships while making and negotiating meaning through viewing, listening, speaking, reading, and writing in Mandarin. In a safe environment, learners are

encouraged to explore and take risks ([Center on the Developing Child, Harvard University](#)). In this age of digital technology and AI, having positive human interactions and experiences is more critical than ever.

### 3. Approaching the acquisition of Chinese characters (hanzi)<sup>3</sup> via the route of cognitive skill development.

It is well known that hanzi are the source of lament and challenge for many learners and teachers. Instead of copying and memorizing hanzi endlessly, learners should be taught to approach it from an analytical perspective, because hanzi actually embed numerous codes of human intelligence. For example, hanzi is designed under six principles: pictograph 象形, simple indicatives 指事, compound indicatives 会意, phono-semantic compounds 形声, associative transformation 转注, and borrowing 假借 (Zhou, 2014). Although the development of hanzi does not adhere strictly to these principles, it indicates how Chinese people, as do all human beings, connect with the natural world and one another through their interpretations, representations, and ways of communication. As Zhou explains, hanzi provides a window for learners to peek into the cognitive process of Chinese speakers (2014). In her book, *Kingdom of Characters: The Language Revolution That Made China Modern*, Tsu (2022) details spellbinding stories of how the cracking of hanzi codes helped China enter the modern technological revolution and global economy.

Furthermore, learners should be taught hanzi in a way that helps them develop

<sup>3</sup> Here our focus is on the acquisition/learning/memorization of hanzi. In fact, there are three layers of hanzi in terms of learning and using them. The most fundamental one is what the author calls as the “foundational layer,” which is equivalent to the pre-literacy level. Learners begin to view, experience, and play with hanzi components and listen to picture books and stories written in hanzi. They are called to pay attention to the shape/form of hanzi, the strokes, and the stroke order of writing them. The second layer is the “acquisition layer,” in which learners begin to formally learn, recognize, analyze, memorize, and hand-write hanzi. The third layer, the “communication layer,” is equivalent to the reading and writing skill development that is commonly discussed in English literacy development. Learners view, read, comprehend, type, write, and compose texts for meaning-making, information, pleasure, and communication purposes (Wang, 2023). The discussion here focuses on the acquisition layer, but it is applicable to all three layers of Chinese literacy development. *Developing Initial Literacy in Chinese* by Everson, Chang, & Ross (2016) is an excellent reference for teaching hanzi to beginners.

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higher-order thinking skills. For example, with radicals, learners can detect meaning and recurring patterns (女 in 妈妈, 姐姐, 妹妹, radical for female as in mother, older sister, and younger sister). Learners can also analyze hanzi, looking for clues for how and why different components are put together (木, 林, 森, 琳, 淋) or engage in classification or sorting either by components (木 in all the sample hanzi above) or radical/meaning (related to wood as in 木/wood, 林/woods, and 森/forest), or phonetic (sounding like *lin* for 林, 琳 and 淋). They can also look for details about how look-alike hanzi are the same or different (e.g., 人, 大, 太, 天, 夫). The constant attention to and process in comparison, contrast, and analysis are essential cognitive skills for life, study, and work.

**4. Understanding that the learning processes, certain linguistic skills, and content knowledge between languages are reinforceable and transferable.** Research shows strong evidence that language skills (speaking, listening, reading, writing, and viewing) learned from different languages are transferable, despite there being language-specific features to address. Sensory-motor skills, common writing system features, comprehension strategies, organization of thought processes, study skills, habits, and attitudes for learning are transferable (e.g., Cloud et al., 2000; Thomas & Collier, 2012; 2017). Time spent in Mandarin benefits English-language development and vice versa. Similarly, learners come to understand that the same feelings, thoughts, concepts, and content

knowledge can be expressed in any language, albeit in different linguistic and socio-cultural codes and ways of communication.

**5. Acquiring learning strategies and metalinguistic awareness about how to learn and developing an attitude for lifelong learning.**

Learning Mandarin is best when the process taps into the theory of multiple intelligences (Gardner, 1999) and Bloom's Taxonomy of Cognition (Bloom, 1956; Krathwohl, 2002), to name two well-known examples in education. Learners are better served when they can reflect with metalinguistic awareness, i.e., think about how they learn a language or any content, employ different methods, and make associations to learn Mandarin. Through the process, their curiosity and imagination are aroused. This habit of learning will develop into an openness and willingness for lifelong learning.

**6. Fostering a “can-do” attitude for growth and grit.** Support learners to develop a “growth mindset,” valuing progression over time instead of focusing on one-shot outcomes. Encourage them not to give up, and let them know they are not alone in trying their best (Dweck, 2016). This growth mindset is especially critical for learning Mandarin. As categorized by the Defense Language Institute, Chinese is a [Category 4](#) language for English speakers to learn. Although the listening and oral aspects of the Chinese language are not more difficult for English speakers to acquire than Spanish or French, the



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reading and writing of hanzi and the huge amount of literary and cultural references are where the challenges lie. Precisely for this fact, learners with a growth mindset will develop grit and perseverance (Duckworth, 2018) to make greater effort, take responsibility, and become more resilient in learning Mandarin. These skills and mindset are exactly what students need for success in life.

### C. Product of Learning

For PreK-Grade 12 students, language proficiency and recognition of that proficiency, cultural knowledge, intercultural and global competence, cognitive skills, and school achievements are the main products of learning. They are summarized here.

- 1. Attaining at least a functional level of proficiency and literacy in Mandarin for social communication.** Educators should set this goal and devote sufficient time for learners to develop proficiency in Mandarin at the ACTFL Intermediate-Mid Level, where they can communicate in regular social situations ([ACTFL Proficiency Guide, 2012](#); also see [Bai, Lien & Spring, 2016](#)). Learners can take advantage of the real or virtual Mandarin programs both in and outside regular schools or a combination of the two. As long as their language proficiency can be assessed based on internationally recognized scales, students do not need to be enrolled in PreK-Grade 12 programs for consecutive years. (See Bai, Lien & Spring, 2016, p. 8 for internationally recognized proficiency scales and available assessments in Mandarin language.)

- 2. Earning the State Seal of Biliteracy or Global Seal of Biliteracy for proficiency in English and Mandarin.** Each Seal program has its credentialing systems in the target language and English, but the Intermediate-Mid and above is the widely accepted level of proficiency, which is also the level needed to prepare for the College Board's Chinese AP course and exam in high school. These Seals are also portable worldwide because they are based on internationally recognized language scales and assessments.

- 3. Gaining knowledge of Asia, including its cultures and people.** Learning Mandarin is like signing up for an academic "buy-one-get-one free" program. Through learning Mandarin and Chinese cultures, learners develop a deeper understanding of the geography, history, and people of the Chinese-speaking regions such as China, Hong Kong, Singapore, and Taiwan. Meanwhile, they gain knowledge of Asia. While China and Asia have become critical in the world's geopolitics, the curriculum of PreK-Grade 12 schools in the United States has continued to address China and Asia superficially in a few chapters in select World Geography and World History courses.

Asia is not monolithic. It is massive and complex, where diverse groups have interacted with one another and outside groups over thousands of years. Asian arts, architecture, cuisines, languages, literature, medicine, science and technology, philosophy, trade, and religions have widespread influence on the world. The creativity, interrelationships,

While China and Asia have increased their significance on the world stage, future leaders and workers will find linguistic proficiency in an Asian language and cultural knowledge of Asia invaluable to their lives and careers. Domestically, the knowledge and acceptance of Asian and Pacific communities enhance diversity, harmony, and inclusion in the American social fabric.

collaborations, conflicts, and impacts created by historical and current contacts or clashes cannot be easily deciphered only through a Western lens. For engagement or conflict resolution, we must understand the socio-cultural and historical contexts and worldviews that Chinese and Asians have developed based on their individual and collective experiences.

The four ancient Chinese inventions -- compass, gunpowder, papermaking, and printing -- changed world history (Needham, 1956; Temple, 1986). Modern scientific and technological innovations are advancing by leaps and bounds, including but not limited to AI, chips, big data, renewable energy, and biomedical discoveries. Amid the Fourth Industrial Revolution and a changing planet, Asia must be considered a serious partner in solving global challenges.

Mandarin language programs should guide students to explore Chinese and Asian cultures beyond celebrating Chinese New Year with lion dances and dumpling-making. While China and Asia have increased their significance on the world stage, future leaders and workers will find linguistic proficiency in an Asian language and cultural knowledge of Asia invaluable to their lives and careers. Domestically, the knowledge and acceptance of Asian and Pacific communities enhance diversity, harmony, and inclusion in the American social fabric. Asians are not “strangers” just because they came “from a different shore” (Takaki, 1989). According to the [2020 Census](#), [20.6 million](#) people identify as Asian, Native Hawaiian, or Other Pacific Islander (not in combination

with another race), making up [6.2% of the nation's population](#). Mandarin language programs should afford learners with opportunities to learn about Asia and what it means to the United States and the world.

**4. Developing higher rates of biliteracy, educational achievement, and cognitive development.** Research has shown that high-quality multilingual and language-immersion education promote the following:

- Higher academic achievement
- The potential for higher biliteracy, building on the foundation of childhood bilingualism
- The development of cross-cultural and cognitive skills
- Critical consciousness for equitable access and social justice
- Enhanced creativity and innovation in thinking and practice

(e.g. Collier & Thomas, 2004, 2017, 2018; Genesee, 2007; Padilla, et al., 2013; Palmer, et al., 2019; Steele, et al., 2017; Thomas & Collier, 2012, 2017; Wang, Harvey, Wong & Peyton, 2022)

### Summary

Thus far, we have discussed the key points of the new framework for Mandarin language learning in the United States. Educators and policymakers are advised to expand beyond the narrow view that language learning is primarily for securing employment with a multinational company. While this view is still honored as a Product of Learning, the new framework suggests additional emphasis on the Purpose of Learning and the Process of

Building on this framework, language programs are encouraged to expand learners' purposes for learning a language and to create meaningful processes that foster learners' cognitive skills, cultural and global competence, and consideration of how to apply their learning products to real life.

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#### **4. DEVELOP A STRATEGIC PLAN TO ESTABLISH AND EXPAND YOUR MANDARIN LANGUAGE PROGRAMS**

As we have argued, education needs serious rethinking and redesign to survive the current and future industrial revolutions. Five steps for establishing or sustaining Mandarin language programs are suggested: *visioning, employing guiding principles, setting goals, leveraging resources, and prioritizing actions.*

##### **A. Visioning**

While developing a vision is a local decision, a committee might find it helpful to keep one fact in mind: most nations have realized that the ability to interact successfully on the human level is more necessary than ever. This is particularly true because AI and big data can be practical tools for solving many global issues or advancing the global economy. The deployment of AI and big data, however, continues to rely on effective human natural language and communication systems. Many nations have thus invested heavily in language and cultural education, in addition to STEM (science, technology, engineering, and mathematics) education, with the hope of growing globally, linguistically, ethically, and technically competent human capital. At present, [about 43% of the people in the world are bilingual \(Gration, 2023\).](#)

**English and Mandarin are two prominent examples of commonly taught languages.** More than 140 non-English speaking nations have compulsory English language educa-

tion policies for their students ([Countries in which English Language is a Mandatory or an Optional Subject, Global English Education Policy, University of Winnipeg](#)). In those countries, learning English is the route to success because English is the global language (Niesner, 2020). In China alone, English is mandated by the national curriculum beginning in Grade 3 and is a test subject for the national college examination, Gaokao. This policy translated to 260 million<sup>4</sup> Grade 3 -Grade 12 English language learners in China.

In contrast, the investment in World Language Education in the United States pales compared to that in China. The United States had only 400,000 students in the K-16 education system learning Mandarin at the peak of the Mandarin growth period (Wang, Everson & Peyton, 2016). Mandarin Chinese is an official language in China, Hong Kong, Singapore, and Taiwan, all critical to our national interests, world trade, peace, and stability ([National Security Language Initiative](#)). It is also gaining a higher global presence, as [more than 76 nations have begun to introduce Mandarin into their compulsory and higher education systems.](#)

The question that policymakers and educational leaders in the United States must ask ourselves is, "To prepare for and deal with the challenges of this current wave and future industrial revolutions, why aren't the education systems in the United States investing in and cultivating a multilingual citizenry with global competence, especially in Mandarin?"

A good starting point may be the development of a high school (or whatever end level) graduate profile, listing the essential elements, core knowledge, skills, disposition, and worldview of a successful graduate, and the preparatory paths that can lead learners to match this profile. Another beneficial

<sup>4</sup> [The total number of K-12 students in China is 290 million.](#) Because English instruction begins at Grade 3, we removed the estimated number of students in K-Grade 2 from the total, yielding approximately 260 million students in Grade 3 to Grade 12.

*Mandarin NOW* guides the design and implementation of a Mandarin language program with the new framework incorporating the Purpose of Learning, Process of Learning, and Product of Learning.

resource for establishing new or updating existing Mandarin language programs is the guiding principle of *Mandarin NOW*<sup>5</sup>.

**B. Employing Mandarin NOW as the Guiding Principle for Your Mandarin Language Programs**

*Mandarin NOW* guides the design and implementation of a Mandarin language program with the new framework incorporating the Purpose of Learning, Process of Learning, and Product of Learning. The NOW principles refer to N: Networking and Experience, O: Opportunity to Learn, and W: World Applications. These principles highlight characteristics of a language program that aims at developing globally competent leaders and workers who possess the core skill sets demanded by disruptive forces and unforeseen changes.

**N: Networking and Experience.** A visionary Mandarin language program will have a strong sense of purpose. As a starter, Mandarin Chinese has the largest number of native speakers in the world and is the second most valuable business language, after English ([Startupr Hong Kong Limited, 10 Most Important Business Languages in Global Market](#), Oct 4, 2018; [Lauerman, Mandarin Chinese most useful business language after English](#), 2011). Mandarin Chinese is also not “foreign” in the United States because it is widely used in the daily life of many ethnic or local communities. An excellent Mandarin program will ensure that local and global engagements are made. Program staff and students will network with their counterparts via real or virtual exchange, study abroad, or partnership programs.

Such a program will also emphasize the Process of Learning by creating ample opportunities for students to experience and explore Chinese

language and cultures, not just in the classroom but also with Chinese-speaking communities. Via experiential learning, students develop critical thinking and research skills between the two languages, cultures, and STEAM curricula (Science, Technology, Engineering, Arts, and Math). Through these meaningful engagements, students apply their learning outcomes in Chinese and teach others about English and American cultures. All of these engagement activities are fundamental in developing students’ global competence.

**O: Opportunity to Learn** is the hallmark of this new framework in practice. Educators must ensure that all students have opportunities (Lo Bianco & Peyton, 2013) to learn another language besides their native language. Linguistic and global competence are powerful equalizers, providing increased economic access and social mobility and uplifting individuals, groups, and nations. This is true not just for the United States but for all nations, which is why so many are investing in developing high multilingual capital, as mentioned earlier. Bilingualism is a highly marketable skill that often commands a higher salary, earning bilingual individuals 5%-20% more per hour than those who speak only one language. The number of bilingual and multilingual jobs is also rising ([Why It Pays to be Bilingual](#)).

Children in urban, rural, or any underserved communities or socio-cultural groups should be able to learn Mandarin. This point is especially poignant for language minorities and young newcomers. By default, they are already equipped with their home language, which differs from English. By learning Mandarin while also acquiring English in school, these children are truly multilingual learners ([Yankelowitz, A move towards multilingual: why this term is better than others](#)

<sup>5</sup> In 2020, Robert Davis, Cleopatra Wise, Xinyi Wu, and Shuhan C. Wang co-presented a session at the C.R.E.D. Conference organized by Global Seal of Biliteracy (virtual, December 2-3, 2020). The title of our panel was [Why & How to Study Chinese NOW: Networking, Opportunities, Worlds](#). I applied this concept, but revised and expanded the ideas more fully here.

Nowadays, as long as educators have the vision and will to offer Mandarin language instruction, there is a corresponding programming option that will meet their needs.

[\[for now\], February 2023](#)).

This principle serves as a guidepost for educators and parents to consider what kinds of programs to offer youngsters in their communities (See Footnote 2 for program types). There is a solid knowledge base and infrastructure for traditional world language or Chinese immersion programs in PreK-Grade 16 settings, [STARTALK](#) is a prominent example. The CELIN Brief, [Key Features of Effective Chinese Language Programs: A CELIN Checklist](#) (Wang & Peyton, 2018), and [Guiding Principles for Dual Language Education](#) (Howard, et al., 2018) are excellent resources for a local committee to establish or evaluate a Mandarin /world language program.

Besides formal in-school programs, there are many Chinese heritage language programs offered by Chinese families (e.g., [National Council of Associations of Chinese Language Schools](#) [NCACLS]; [Chinese School Association in the United States](#) [CSAUS]; [National Coalition of Community-Based Heritage Language Schools](#)). These weekend or afterschool programs can be tapped into as partners for Mandarin language programs. Another option is collaborating with nearby community colleges or universities to offer Mandarin programs. A wide range of digital or virtual learning programs or platforms are available, both in and outside the school day. Nowadays, as long as educators have the vision and will to offer Mandarin language instruction, there is a corresponding programming option that will meet their needs.

Finally, opportunity refers to recognizing the outcomes of students' learning. As discussed earlier, internationally recognized proficiency scales and assessments are available, and the [State Seals of Biliteracy](#) and the [Global Seal of Biliteracy](#) can certify students' proficiency levels in English and the target language.

These recognitions will certainly increase students' incentives to learn Mandarin.

**W: World Applications** is the ultimate goal for learning a language and culture. Equipped with functional and higher Mandarin language proficiency, cognitive skills, and global competence as part of their expertise repertoire, students can collaborate with others to advance their study and work and become stewards for world peace and prosperity, prepared to confront global challenges and affect change. A Mandarin program designed with this new *Mandarin NOW* principle will ensure students can apply their learning in real life and understand that language is not simply a school subject but a valuable tool for authentic communication, collaboration, and professional advancement and contribution.

### C. Setting Goals

Each local school board or school must set goals for their Mandarin programs. It is crucial that all stakeholders, such as educators, parents, students, policymakers, leaders of private and public sectors, foundations, for-profit or non-profit organizations, and the community at large, collaborate to set goals and support the programs. Some example goals may be as follows:

1. All students will have the opportunity to learn Mandarin language and Chinese cultures through formal, informal, community-based, in-person, or virtual language and study abroad programs.
2. All students will develop a functional level of proficiency and literacy (ACTFL Intermediate-Mid Level) through their Mandarin language study.
3. The U.S. PreK-16 (including tertiary level) education system will have relevant and rigorous Mandarin

The Chinese language field has built a solid infrastructure and numerous resources for learning and teaching Mandarin from PreK to higher education over the past few decades.

language programs available for students who desire to study language, culture, and content knowledge in Mandarin.

4. All learners will have access to earning the State or Global Seal of Biliteracy.
5. A comprehensive teacher pipeline system will be strengthened and sustained to ensure the supply and support of quality language teachers for PreK-16 settings (See Harvey & Silva, 2018; Lyon, 2018; Wang, 2009; 2014; Wang & Wong, 2018 for building and expanding Mandarin teacher pipelines.)
6. All stakeholder individuals and groups will have access to share, retrieve, and exchange information, strategies, materials, and resources via a robust digital platform and various multi-media channels.

#### D. Leveraging Resources

As mentioned earlier, the Chinese language field has built a solid infrastructure and numerous resources for learning and teaching Mandarin from PreK to higher education over the past few decades. Any entity that desires to establish or expand a Mandarin language program can leverage these resources instead of starting from scratch. Some examples are listed below, and much more can be found at the [Asia Society](#) site.

- [Asia Society Education](#) and the [Chinese Early Language and Immersion Network \(CELIN\)](#) at Asia Society. [The CELIN Brief Series](#) and numerous academic and practical resources for programs, teachers, and parents, including databases that list student and teacher programs, are research-based and field-generated.
- The Chinese Advanced Placement (AP) Course and Exam, College Board
- The [National Security Language Initiative](#) offers [STARTALK](#) summer programs for students and teachers, [NSLI-Y study abroad programs for youth](#), [Teachers of Critical Language Programs](#), and [Language Flagship Programs](#) in 21 universities for critical languages, such as Arabic, Chinese, Korean, Persian, Portuguese, and Russian.
- Language-related professional organizations such as the [American Council for the Teaching of Foreign Languages](#) (ACTFL), the [Chinese Language Association of Secondary-Elementary Teachers](#) (CLASS), the [Chinese Language Teacher Association, USA](#) (CLTA), the [Joint National Committee for Languages](#) (JNCL-NCLIS), national language resource centers, and numerous others are invaluable.
- Chinese heritage language programs and organizations, and the [Coalition of Community-Based Heritage Language Programs](#).
- Curriculum, instruction, and assessment resources:
  - Guides for program establishment and evaluation
  - Internationally recognized language proficiency and literacy scales
  - Curriculum
  - Instruction
  - Assessment
  - State/Global Seal of Biliteracy
  - Credit by examination

The interrelationships between AI and human language are more intimately woven and consequential than ever. This fact also speaks to the need for human beings to become biliterate or multi-literate to work with AI at a deeper level.

- Online/virtual learning platforms in and outside of school
- Print and digital materials
- Games and entertainment

### E. Prioritizing Actions

Establishing effective language programs takes a long time, not to mention funding; recruitment, professional development for, and credentialing of qualified teachers; research on pedagogy for teaching and learning Mandarin; and developing instructional materials and multi-media/digital resources to support learners and families. Once local decision-makers develop a plan, they must prioritize actions to implement it. The journey might be arduous, but the rewards will benefit students and the community.

## 5. CONCLUSION

The world has transitioned into the Fourth Industrial Revolution, which impacts all aspects of life, including how we “do” education. In this paper, we analyze the core knowledge, skills, and attitudes that children growing up in this time must possess, namely, the multilingual and global competence, intercultural competence, and cognitive and communicative skills needed to collaborate with people all over the world, serving as stewards of the planet, and the disposition for lifelong learning.

As Artificial Intelligence and digital technology continue to advance, the need for human beings to develop and use language skills is more urgent than ever. As it stands now, humans remain the only living entities that can **create** language. Machine translation is increasingly accessible, but humans are the ones to ensure accuracy and decode the socio-cultural meanings intertwined within text and subtext. The interrelationships

between AI and human language are more intimately woven and consequential than ever. This fact also speaks to the need for human beings to become biliterate or multi-literate to work with AI at a deeper level.

Building on this notion, we argue that the traditional view of language education is too narrow, focusing mainly on the outcome of learning and its economic utility. **We propose a new framework for Mandarin and World Language Education that focuses on the Purpose of Learning, Process of Learning, and Product of Learning.** This new framework honors the importance of language learning outcomes (products) but calls attention to the value of the purposes and processes of learning. **This framework connects language education with the demands for new core knowledge, skills, and dispositions in the AI age.** That is, when learning another language, students are simultaneously acquiring cognitive skills, global competence, and a habit for lifelong learning, all critical elements of human resources in the global community. In addition, Mandarin learners develop a more profound knowledge of Asia, which is only superficially taught in American PreK-Grade 12 schools.

We also suggest ways of designing and implementing Mandarin language programs in local communities. Strategic plans should include (1) Visioning, (2) Employing Mandarin NOW as the Guiding Principles, (3) Setting Goals, (4) Leveraging Resources, and (5) Prioritizing Actions.

The United States and China must collaborate with each other, along with other nations, to ensure the planet’s peace, health, prosperity, and sustainability. One of the fundamental tools of engagement is to have the ability to communicate accurately, efficiently, and suc-

With AI and other technological advancements, the upper hand will be given to those who can decode languages and meanings and be agile in their responses.

cessfully. While the United States may continue to expect people of diverse languages and cultures to communicate in English, much is lost in translation, with or without machines. With AI and other technological advancements, the upper hand will be given

to those who can decode languages and meanings and be agile in their responses. The decision to promote these skills and seize their advantages is one legacy that educators and policymakers can leave for children in their local communities.

## REFERENCES

- Agudo, R. (2021). Can we rid language departments of the F-word? Inside Higher Ed., April 6, 2021.
- Bai, J., Lien, L., Spring, M. K. (2016). Mapping Chinese language learning outcomes in grades K-12. In S. C. Wang & J. K. Peyton (Eds.), *CELIN Briefs Series*. New York, NY: Asia Society.
- Bialystok, E. (2015). Bilingualism and the development of executive function: The role of attention. National Library of Science.
- Beeman, K., & Urow, C. (2013). Teaching for biliteracy: Strengthening bridges between languages. Philadelphia: Caslon Publishing.
- Bloom, B. (1956). Taxonomy of educational objectives. Book I: Cognitive domain. New York: David McKay.
- Boix Mansilla, V., & Jackson, A. W. (2023, 2nd Ed.). Educating for global competence: Preparing our students to engage the world. Alexandria, VA: ASCD.
- Cloud, N., Genesee, F., & Hamayan, E. (2000). Dual language instruction: A handbook for enriched education. Boston, MA: Heinle & Heinle.
- Collier, V. P., & Thomas, W. P. (2004). The astounding effectiveness of dual language education for all. *NABE Journal of Research and Practice*, 2(1), 1–20.
- Collier, V. P., & Thomas, W. P. (2017). Validating the power of bilingual schooling: Thirty-two years of large-scale, longitudinal research. *Annual Review of Applied Linguistics*, 37, 203–217.
- Collier, V. P., & Thomas, W. P. (2018). Transforming secondary education: Middle and high school dual language programs. Albuquerque, NM: Dual Language Education of New Mexico Fuente Press.
- Countries in which English is a mandatory or an optional subject (with interactive map). The University of Winnipeg
- Duckworth, A. (2018). Grit: The power of passion and perseverance. Scribner/Simon & Schuster.
- Dweck, C. S. (2016). Mindset: The new psychology of success. New York, NY: Penguin Random House.
- Everson, M.E., Chang, K., & Ross, C. (2016). Developing initial literacy in Chinese. In S.C. Wang & J.K. Peyton (Eds.), *CELIN Briefs Series*. New York, NY: Asia Society.
- Gardner, H. (1999). Intelligence reframed: Multiple Intelligences for the 21st century. New York, NY: Basic Books.
- Genesee, F. (2007). Top ten most consistent findings from research on foreign language immersion. *The ACIE Newsletter*, 10(3). [http://www.carla.umn.edu/immersion/acie/vol10/may2007\\_researchfindings.html](http://www.carla.umn.edu/immersion/acie/vol10/may2007_researchfindings.html)
- Giovannoli, J., Martella, D., Federico, F., Pirchio, S., & Gasagrande, M. (2020). The impact of bilingualism on executive functions in children and adolescents: A systematic review based on the PRISMA method.
- Gration, E. (2023). Bilingualism in 2023: US, UK & global statistics.
- Halliday, M.A.K. (1993). Towards a language-based theory of learning. In *Linguistics and Education* 5, 93–116.
- Harvey, R.E., & Silva, D. M. (2018). Cultivating Teacher Leaders to Advance the Field of Chinese Language and Culture Education. In S.C. Wang & J.K. Peyton (Eds.), *CELIN Briefs Series*. New York, NY: Asia Society.
- Haugen, E. (1972). The ecology of language. In A. S. Dil (Ed.), *The Ecology of language* (pp. 325–339). Stanford, CA: Stanford University Press.
- Hornberger, N. H. (2003). Multilingual language policies and the continua of biliteracy: An ecological approach. In N. H. Hornberger (Ed.), *Continua of biliteracy: An ecological framework for educational policy, research, and practice in multilingual settings* (pp. 315–339). Clevedon, UK: Multilingual Matters.
- Howard, E. R., Lindholm-Leary, K. J., Rogers, D., Olague, N., Medina, J., Kennedy, D., Sugarman, J., & Christian, D. (2018). Guiding Principles for Dual Language Education (3rd ed.). Washington, DC: Center for Applied Linguistics.
- Krathwohl, D. R. (2002). A revision of Bloom's Taxonomy: An overview. *Theory into Practice*, 4.
- Livaccari, C., (2017). New ways of seeing: How multilingualism opens our eyes and trains our minds for a complex world. New York: Asia Society.



- Lo Bianco, J., & Peyton, J.K. (Eds.) (2013, Winter). *Vitality of heritage languages in the United States*. Special issue of the *Heritage Language Journal*, 10(3).
- Lyon, S. (2018). *Recruiting and Supporting International Chinese Language Teachers in U.S. K-12 Programs*. In S.C. Wang & J.K. Peyton (Eds.), CELIN Briefs Series. New York, NY: Asia Society.
- Needham, J. (1956). *Science and civilisation in China*. Cambridge, UK: Cambridge University Press.
- Niesner, B. (2020, March 11). *Could AI make language learning obsolete?*
- Padilla A. M., Fan L., Xu Z., Silva D. (2013). A Mandarin/English two-way immersion program: Language proficiency and academic achievement. *Foreign Language Annals*, 46(4), 661–679.
- Palmer, D. K, Cervantes-Soon, C., Dorner, L. & Heiman, D. (2019). Bilingualism, biliteracy, biculturalism, and critical consciousness for all: Proposing a fourth fundamental goal for two-way dual language education. *Theory Into Practice*, 58(112), 121-133.
- Steele, J. L., Slater, R. O., Zamarro, G., Miller, T., Li, J., Burkhauser, S., & Bacon, M. (2017). *Effects of dual-language immersion programs on student achievement: Evidence from lottery data*. *American Educational Research Journal*, 54(1), 1-9.
- Takaki, R. (1989). *Strangers from a different shore. A history of Asian Americans*. New York, NY: Penguin Books.
- Temple, R. (1986). *The genius of China: 3,000 years of science, discovery, and invention*. New York, NY: Simon and Schuster.
- Thomas, W. P., & Collier, V. P. (2012). *Dual language education for a transformed world*. Albuquerque, NM: Dual Language Education of New Mexico Fuente Press.
- Thomas, W. P. & Collier, V. P. (2017). *Why dual language schooling*. Albuquerque, NM: Dual Language Education of New Mexico – Fuente Press.
- Tsu, J. (2022). *Kingdom of characters: The language revolution that made China modern*. New York, NY: Riverhead Books.
- Wang, S. C. (2008). The ecology of the Chinese language in the United States. In A. Creese, P. Martin and N. H. Hornberger (Eds.), *Encyclopedia of language and education, 2nd Edition, Volume 9: Ecology of language*. (pp. 1–13). Springer.
- Wang, S. C. (2009). Preparing and Supporting Teachers of Less Commonly Taught Languages. *The Modern Language Journal*, 93(2), 282-287.
- Wang, S. C. (2011). An ecological perspective for planning Chinese language in the United States. In F. M. Hult and K. A. King (Eds.), *Educational Linguistics in Practice: Applying the Local Globally and the Global Locally (154-172)*. Bristol, UK: Multilingual Matters.
- Wang, S. C. (2012). The study of Chinese language in the United States. *ADFL Bulletin*, 42(1), 20.
- Wang, S. C. (2014). Preparing and Support Language Teachers throughout Their Professional Life Cycle. In Li Yuming (ed.), *World Language Education and Talents Cultivation* (pp.171-191). Beijing, China: Beijing Language and Culture University Press.
- Wang, S. C. (2023). *Understanding language proficiency and literacy and developing students' Chinese language skills*. Michigan State University 2023 STARTALK Chinese Language Teacher Project. Unpublished training materials.
- Wang, S. C., Everson, M., & Peyton, J. K. (2016). *State of the Chinese language field in U.S. K-12 schools: Reaching a tipping point*. College Board and ELE Consulting International. Unpublished manuscript.
- Wang, S.C., Harvey, R.E., & Peyton, J.K. (2021). An Emerging Field: Chinese Immersion Preschool Education. In S.C. Wang & J.K. Peyton (Eds.), CELIN Briefs Series. New York, NY: Asia Society.
- Wang, S. C., Harvey, R., Wong, M. K., Peyton, J. K. (2022). *A Blueprint for Chinese Immersion Preschools in the United States: Imaging the Possibilities*. In S.C. Wang & J.K. Peyton (Eds.), CELIN Briefs Series. New York, NY: Asia Society.
- Wang, S.C. & Peyton, J. K. (Eds.). *CELIN Briefs on Chinese Language Learning and Teaching*. New York, NY: Asia Society. Eleven Briefs in English and Chinese on topics related to the Chinese language field.
- Wang, S.C., Peyton, J.K. (2018). *Key Features of Effective Chinese Language Programs: A CELIN Checklist*. In S.C. Wang & J.K. Peyton (Eds.), CELIN Briefs Series. New York, NY: Asia Society.
- Wang, S.C., & Wong, K.M. (2021). *Surveying Chinese Immersion Preschool Programs and Teachers in the United States: 2020-2021*. In S.C. Wang & J.K. Peyton (Eds.), CELIN Briefs Series. New York, NY: Asia Society
- World Economic Forum. (2016). *The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution*.
- World Economic Forum. (2023). *Defining education 4.0: A taxonomy for the future of learning, white paper*.
- World Economic Forum. (2023). *Future of jobs report 2023. Insight report, May 2023*.
- Yankelowitz, J. (2023). A move towards multilingual: why this term is better than others [for now]. *Multilingual Learners*.
- Zhou, Z. (2014). *The six principles of Chinese writing and their application to design as design idea*. *Studies in Literature and Language, CSC Canada*, 8(3), 84-88.

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