

CHINA AT THE CROSSROAD: HOW CHINA IS TURNING THE CORNER ON INNOVATION

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Contextualization: This article examines China's drive toward innovation in public education, suggesting that the country is determined to transform its educational system into one that fosters creativity as a norm and makes innovation a consistent, prioritized outcome. Changes in educational practices will only occur if the idea is consistent and has clear value for parents, business leaders, and educators. The Chinese leadership is clearly focused on making this change happen.

Objective: The purpose of the article is to discuss several key elements that can facilitate the path to institutionalizing innovation within China's educational system. This includes the possibility of China monetizing innovation by becoming a leader in the global battle for new design patents, which would justify substantial investments in the future transformation of its educational system, from kindergarten through to postgraduate education.

Methodology: This is exploratory research that uses the inductive method and employs a literature review as the technique for data collection.

Results: The article suggests that, with adequate support and guidance, China is ready to take on the challenge of fostering innovation in a short period of time. This depends on a series of decisions about how space is used, how teachers are assigned, trained, and supported, and the concepts and pedagogy that drive learning. Supporting teachers in building and managing new structures that foster innovation is essential for changing the structure of schools and teaching, teaching students to become more creative, which is crucial for China's future economy.

Keywords: Innovation; China; Public education.

CHINA NA ENCRUZILHADA: COMO A CHINA ESTÁ AVANÇANDO NA INOVAÇÃO

Contextualização: Este artigo analisa o impulso da China em direção à inovação na educação pública, sugerindo que o país está determinado a transformar seu sistema educacional em um que promova a criatividade como norma e faça da inovação um resultado consistente e priorizado. Mudanças nas práticas educacionais só ocorrerão se a ideia for consistente e tiver um valor claro para pais, líderes empresariais e educadores. A liderança chinesa está claramente focada em realizar essa mudança.

Objetivo: O objetivo do artigo é discutir vários elementos-chave que podem facilitar o caminho para a institucionalização da inovação no sistema educacional da China. Isso inclui a possibilidade de a China monetizar a inovação tornando-se líder na batalha global por novas patentes de design, o que justificaria investimentos substanciais na transformação futura de seu sistema educacional, desde a educação infantil até a pós-graduação.

Metodologia: trata-se de pesquisa exploratória que se vale do método indutivo e utilizada a revisão bibliográfica como técnica para coleta de dados.

Resultados: O artigo propõe que, com apoio e orientação adequados, a China está pronta para enfrentar o desafio de nutrir a inovação em um curto espaço de tempo. Isso depende de uma série de decisões sobre como o espaço é utilizado, como os professores são designados, treinados e apoiados, e os conceitos e a pedagogia que direcionam a aprendizagem. Apoiar os professores na construção e gestão de novas estruturas que fomentem a inovação é essencial para mudar a estrutura das escolas e do ensino, ensinando os alunos a se tornarem mais criativos, o que é fundamental para a futura economia da China.

Palavras-chave: Inovação; China; Educação Pública.

CHINA EN LA ENCRUCIJADA: CÓMO CHINA ESTÁ AVANZANDO EN LA INNOVACIÓN

Contextualización: Este artículo examina el impulso de China hacia la innovación en la educación pública, sugiriendo que el país está determinado a transformar su sistema educativo en uno que fomente la creatividad como norma y haga de la innovación un resultado consistente y priorizado. Los cambios en las prácticas educativas solo ocurrirán si la idea es consistente y tiene un valor claro para padres, líderes empresariales y educadores. La liderazgo chino está claramente enfocado en hacer que este cambio suceda.

Objetivo: El propósito del artículo es discutir varios elementos clave que pueden facilitar el camino hacia la institucionalización de la innovación dentro del sistema educativo de China. Esto incluye la posibilidad de que China monetice la innovación convirtiéndose en líder en la batalla global por nuevas patentes de diseño, lo que justificaría inversiones sustanciales en la transformación futura de su sistema educativo, desde el jardín de infantes hasta la educación posgraduada.

Metodología: Se trata de una investigación exploratoria que utiliza el método inductivo y emplea la revisión bibliográfica como técnica para la recolección de datos.

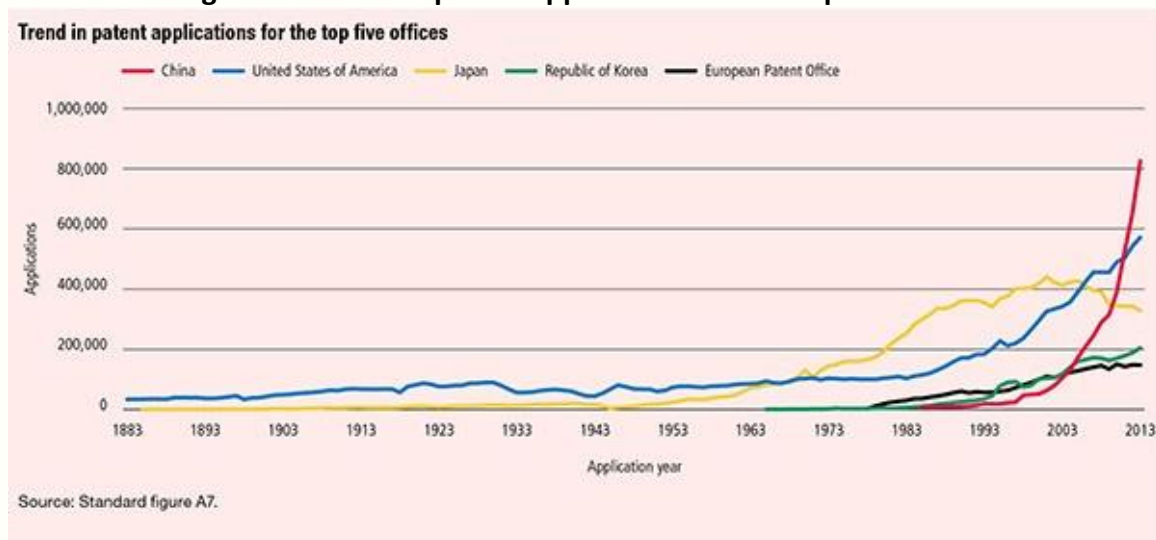
Resultados: El artículo sugiere que, con el apoyo y la orientación adecuados, China está lista para asumir el desafío de fomentar la innovación en un corto período de tiempo. Esto depende de una serie de decisiones sobre cómo se utiliza el espacio, cómo se asignan, entrenan y apoyan a los profesores, y los conceptos y la pedagogía que impulsan el aprendizaje. Apoyar a los profesores en la construcción y gestión de nuevas estructuras que fomenten la innovación es esencial para cambiar la estructura de las escuelas y la enseñanza, enseñar a los estudiantes a ser más creativos, lo cual es crucial para la futura economía de China.

Palabras clave: Innovación; China; Educación pública.

INTRODUÇÃO

Historically, the U.S. has been a world leader in patent filings. Years ago, China's President Xi stated affirmatively that his goal was to surpass the U.S. in the creation of new patents, pondering why that little country in the Americas had so many more design patents than China which is a larger, and has a more ancient civilization than the U.S. Today, more patents, trademarks and industrial designs are filed in China than anywhere else in the world combined, a trend that has accelerated considerably in the last decade. Patent filings are, of course, not the only indicator of growth, but China is the fastest growing market in the world in this regard.

Figure 01: Trend in patent applications for the top five offices



Source: Industry Tap¹

Part of this trend is due to 120,000 international companies filing patents in 2013 to protect their intellectual property rights in China, as this offers some protection in a fast growing economy. In the same period, residents of China had over 700,000 patents but only 30,000 internationally. Chinese companies are only now beginning to see the value of patent protection, especially internationally. China has increased its output of patents but the question is whether it can sustain and institutionalize this momentum for true innovation.²

1. WHAT DOES IT TAKE TO CHANGE THE NATURE OF EDUCATIONAL PRACTICE?

In my travels throughout China over the last decade, it was clear that China had

¹ Industry Tap. **China Ahead in Global Patent Arms Race**. abr. 2015. Disponível em: <https://www.industrytap.com/china-ahead-global-patent-arms-race/41943>.

² SNEDDON, Michael. Visões Internas: Uma olhada no enorme aumento nos depósitos de patentes na China. **Intellectual Property Watch**, 22 abr. 2015.

set its sights on surpassing the U.S. in terms of innovation. It set itself on a path to do just that. It has taken the lead in terms of the holy grail of industrial growth; industrial design patents that drive industry by securing intellectual property in the creativity economy. Today, China is the largest origin of registered trademarks worldwide, more than all of its nearest competitors combined³.

China aims to be a leader in patents across the board. To do this, the country will need to enhance the popular perception of the need to protect its intellectual property, which is currently somewhat limited. If patents are seen as mere trophies, rather than business necessities then there will be a natural tendency to avoid the cost of translation and filing. Until patents are seen as a basis for value as opposed to simply being factored into production costs, they will be perceived as less essential.

One key focus area in the 2016 plan was to “Move up in the value chain by abandoning old heavy industry and building up bases of modern information-intensive infrastructure”. China plans to aggressively pursue this goal. For example, it has authorized the building of several new universities to help redesign the nature of teacher education. China’s aspiration raises questions about what it will take to transform the culture, values and educational system to one that increasingly values innovation. Certainly, teacher and leadership training focused on innovation will be essential, at a minimum.

One strategy is to begin the shift to a new paradigm of education, inviting early adopters to innovate themselves, instead of imposing the innovation on unwilling or even resistant populations. The experiment should start small. Instead of imposing it all schools or all students in a school or education system, we can start with a small group of students within a school or a small number of schools within a system. This is what China did with the Shenzhen Special Economic Zone.

2. HOW CAN THE SHIFT TO AN EDUCATION FOCUSED ON INNOVATION BE RATIONALIZED AND MONETIZED?

China wants its products to say, “Designed in China” instead of “Made in China”. Control over the design leads to control over the economy itself, locally and globally. To get there, the current 5-year plan exhorts, “Everyone is an entrepreneur, creativity of the masses”.

To drive this level of change throughout the society, innovation must be supported by changes in systems and structures, increased opportunity for learning through play, teaching creativity as a core competence, and building leadership that can support teachers

³ TAUBMAN-REZAKHANLOU, Jahan Harry. China Continues High Growth in IO Filings, But is There More To The Story. **Intellectual Property Watch**, 04 fev. 2016.

in implementing new initiatives. China would do well to create an education impact index to measure the relationship between current investment in learning and economic impact.

This would help to amplify the connections between innovation and investment, and their impacts on the economy. Policy makers naturally look for a return on their investment, or more to the point, a return on learning, where what students are learning can be seen to have a clear relationship to emerging economies. Intellectual property commercialization creates an inherent value proposition for educational transformation for China just as it does in the U.S.

3. HOW CAN WE TEACH INNOVATION?

Innovation requires creativity and even a kind of playfulness. As a large society, China has found it necessary to organize its population systematically. When you look at the grand scale that Chinese schools have to operate in, it is no surprise that they have to instill a degree of order and discipline in students just to manage the sheer mass of students in most schools. You only have to watch students on the playground to understand the challenge of synchronizing hundreds or thousands of students during their free time. Watching a playground filled with 5,000 students doing synchronized calisthenics all at the same time is a remarkable, though not unusual sight in China.

Order is essential. And yet, Chinese schools are increasingly determined to guide students to play. A core ingredient that leads to creativity is free play, unstructured time to learn through play, peer interactions and opportunities for failure. Institutionalizing “play” requires creating unstructured time where students can learn in unpredictable ways. For creativity to be nourished, it is important to learn how to play and, most importantly, how to fail. Managing the shame that accompanies failure is particularly important to the economic future of China. China is learning to play anew, a key ingredient on its journey to increased innovation.

This is the crux of the crossroads that China faces. Can a hyper structured society transition to one that incorporates and even values unstructured time and opportunities for creativity?

4. WHAT OTHER CHANGES WOULD BE REQUIRED TO ESTABLISH INNOVATION AS COMMON PRACTICE?

4.1 From testing to creativity

Undoubtedly, the task of facilitating play is encumbered by decades, or rather,

centuries of history of China's high stakes national exam, the Gaokao. Teaching students how to play in China involves encouraging play at a time when students are working extremely hard to succeed in school as a matter of sheer survival. The national test is seen by most parents as the gateway to a stable life with a government job. Efforts have been increased in recent decades to diminish the perceived importance of the test in the eyes of students and parents, but these have met with stiff resistance.

Attempts to redirect student efforts away from intense studying for the test are foiled by parental and societal pressure to succeed. Despite the government's best efforts, parents continue to labor arduously to ensure that children are prepared for the test. Students study long and hard to excel, and this contradicts any efforts to change the curricula, and redesign a student learning that is more accustomed to lectures, rote learning and memorization, and paper and pencil tests. Efforts to prepare students for study abroad in international universities are no less numbing to student creativity, as schools emphasize the TOEFL and SAT's exams above all else. It is possible that the opening of the Chinese economy may yield changes in parental expectations over subsequent generations. It is difficult to tell whether time alone will help, but Chinese education leaders are facing the challenge head on.

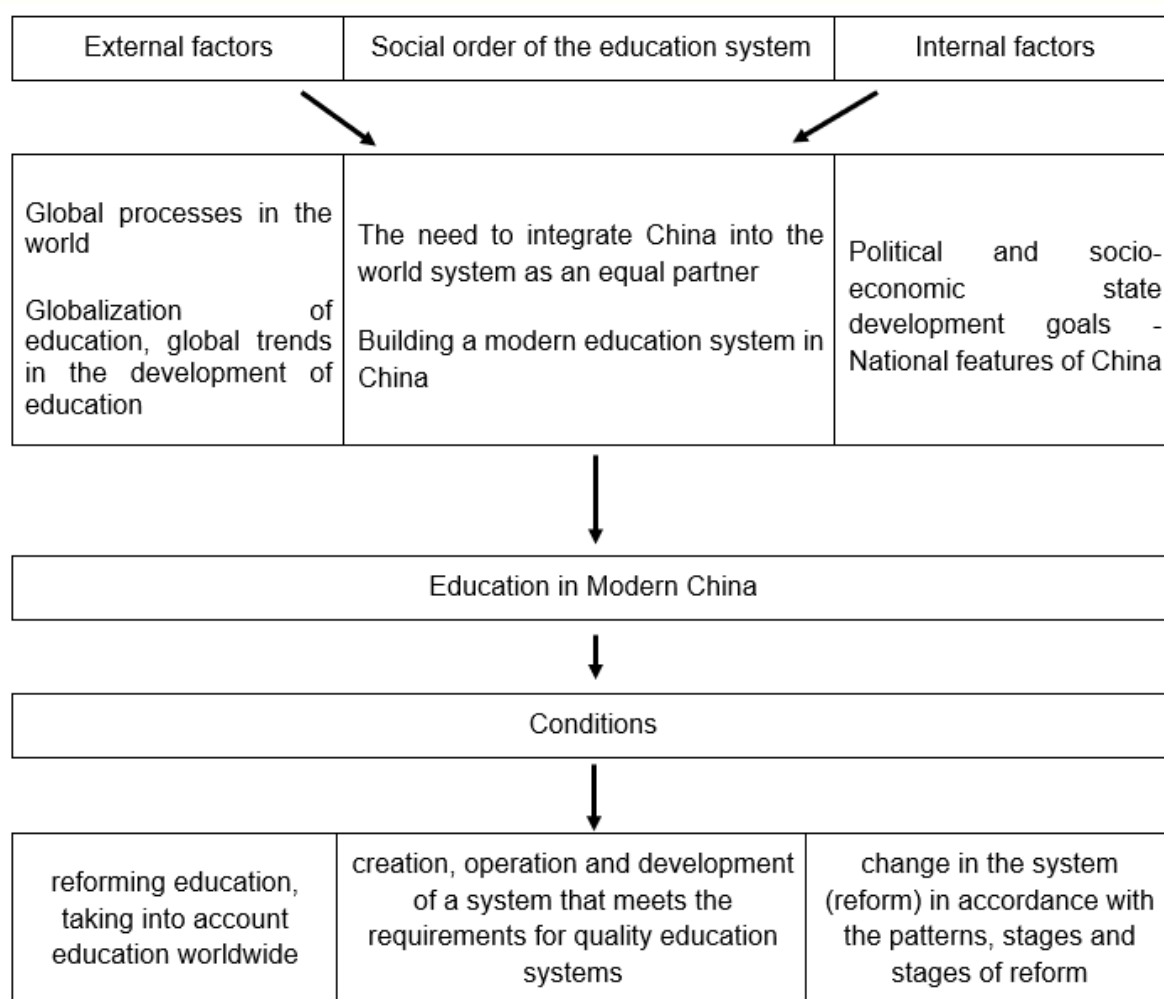
4.2 Roles and pedagogy

Not only does China need to redesign the learning activities of students, it also needs to redesign the role of the teacher in order to change pedagogy. Redesigning the teacher's role to support creative learning opportunities is a vital step to increasing innovation and play. If students are to learn through creative exploration and project-based learning (PBL) then the role of the teacher has to evolve. Teachers in China consistently create flawless PowerPoint presentations and implement them with precision. PBL and play require a breaking away from restrictive learning plans to embrace helping students in the pursuit of their passions. I have no question that the leadership in Beijing is embracing this question with vigor and great insight.

There is a strong interest in moving toward a new way of thinking about teacher assignment and new pedagogies based on data and strategic pilot tests of new learning models. At high levels, educational leaders understand the value of social media and new pedagogy in changing how students learn and how they relate to teachers. They are pushing questions on the future of learning, and they appear to be open to finding answers that may require a total redefinition of public education. At the building level, teachers and principals are beginning to take the lead in forging new educational strategies and teaching methodologies.

The key strategy for redesigning the curriculum is the idea of core competencies. China aspires to educate and prepare people for future and likely unknowable life and work

by embracing worldwide trends in educational skills, such as those used by the Organization for Economic Co-operation and Development, and nations like Finland, Australia, and the U.S.. Over the past twenty years, educational objectives have evolved from shuangji (literally, "double basics," meaning fundamental knowledge and abilities) to suzhi (qualities), and finally to the current goal of suyang (competencies). In the most recent cycle of curriculum reform, the goal of the curriculum was defined as a suzhi education, which is frequently translated as "quality" education⁴. The use of this term was aimed at incorporating moral, intellectual, physical, and artistic instruction into schooling⁵. Compared to shuangji ("double basics"), it was an improvement⁶.



⁴ DELLO-IACOVO, Belinda. Curriculum Reform and "Quality Education" in China: An Overview. *International Journal of Educational Development*, v. 29, n. 3, p. 241-249, 2009.

⁵ MINISTRY OF EDUCATION OF THE PEOPLE'S REPUBLIC OF CHINA (MOE). *Jiaoyubu bangongting guanyu tuijin shishi gaoxiao sixiang zhengzhi lilunke tepin jiaoshou zhidu de tongzhi*. 2016. Disponível em: <http://www.moe.edu.cn/srcsite/A13/moe_772/201604/t20160412_237724.html>. Acesso em: 15 mar. 2024.

⁶JIANG, Zhaochen. Literacy teaching by rhyming text. *International Conference of Chinese Education*, p. 272-280, 2002.

The new paradigm has another core element: value creation. Personalizable education is not only about supporting students' pursuit of their passion and strength through agency, co-ownership, and flexibility, but also about guiding students to turn their passion and strength into value for others. By creating something valuable, students find purpose in their learning and put in efforts to enhance their strengths. They don't just learn from others, they also learn for others. This is to enhance children's creativity and develop an entrepreneurial mindset. Product-oriented Learning (POL)⁷ is an effective pedagogical approach to support value creation.

POL, or entrepreneurial PBL, has three basic elements: authentic products, sustained and disciplined process, and roles that are strength-based. Learning does not begin with a textbook or predetermined sequence of knowledge and skills. Instead it starts with identifying problems worth solving. The outcome is not a test score, completed worksheets, or an essay to be read and graded only by the teacher. Instead it is a meaningful product, service, or program that solves a problem.

Authentic works need to be of high quality, and high quality comes from sustained and disciplined efforts. Thus, POL requires students to go through multiple rounds of reviewing and revision. In POL, students seek feedback from their peers, teachers, potential users of their works, and professionals outside the school. Based on the feedback, they develop more knowledge and skills needed to improve their works. Then they revise and improve.

Being strength-based is about guiding students to discover and develop their strengths and passions. Moreover, it helps students learn to discover and avoid their weaknesses. By helping students find and avoid their weaknesses, POL teaches students to discover other people's strengths and collaborate with them. Unlike traditional PBL, which asks students to do similar things, POL suggests that members of a team perform distinctively different tasks and be responsible for different aspects of the project, according to the strengths of each member.

4.3 Creativity

Leaders need training to support the redesign of educational systems and structures that may support innovation. Creating a culture of Design Thinking at the student, faculty and leadership levels takes a concerted effort to enable pilots, train teachers and leaders in the new initiatives and to design a roll out process that builds momentum in the

⁷ ZHAO, Yong. **Aprendizes de classe mundial:** Educando estudantes criativos e empreendedores. Thousand Oaks: Corwin, 2012.

new initiatives. STEAM initiatives are gaining a foothold in China. Initiatives for Global Studies are also gaining in popularity. These initiatives in China will only be successful if full-scale plans are designed, outlining what each system needs in order to implement the curriculum. Teachers can be among the first to embrace new ideas when they feel supported and allowed time to buy-in and to help drive the plan forward. The challenge is to avoid teachers being immersed in new teaching and learning initiatives without adequate preparation and leadership support. The buy-in from teachers is as important in China as it is in the U.S.

To be creative is to be different. Thus, creative people often have ideas, behaviors, beliefs, and life styles that deviate from the norm and tradition. They may also be interested in different domains than what is offered in schools. Research on the social and contextual influences of creativity has found that in general, tolerance of deviation from tradition and the norm results in more creativity (Florida, 2002, 2012). Schools have been generally found to suppress creativity because they demand conformity and obedience⁸. "Most young children are naturally curious and highly imaginative ... after children have attended school for a while, they become more cautious and less innovative ... Unfortunately, it can be concluded, from the investigations of many scholars, that our schools are the major culprits. Teachers, peers, and the educational system as a whole all diminish children's urge to express their creative possibilities"⁹. Researchers have also found a significantly negative relationship between high school grades and students' confidence to generate creative ideas¹⁰. In a related line of work, researchers found that extra-curricular activities tended to be a stronger predictor of creative expression in college applicants than traditional admissions factors, such as SAT scores and high school grades¹¹.

It is easy to comprehend why Americans are more creative than Chinese people. First, "American children spend less time in academic activities than Chinese and Japanese children, in terms of hours per day and days per year at school," they are less exposed to the "creativity killing machine" that is the school¹². Due to the fact that most American children

⁸ MASHKINA, O. A. China: prospects for innovation and education. *História e Modernidade*, n. 2, p. 144–158, 2010; GAJDA, A.; BEGHETTO, R. A.; KARWOWSKI, M. Exploring creative learning in the classroom: A multi-method approach. *Thinking Skills and Creativity*, v. 24, p. 250-267, 2017. Disponível em: <https://doi.org/10.1016/j.tsc.2017.04.002>

⁹ DACEY, J. S.; LENNON, K. H. **Understanding creativity**: The interplay of biological, psychological, and social factors. San Francisco: Jossey-Bass, 1998. p. 69.

¹⁰ COTTER, K. N.; PRETZ, J. E.; KAUFMAN, J. C. Applicant Extracurricular Involvement Predicts Creativity Better Than Traditional Admissions Factors. *Psychology of Aesthetics, Creativity, and the Arts*, v. 24, p. 250-267, 2015. DOI: 10.1037/A0039831.

¹¹ BAIDU COMPANY. Chinese internet learning white paper. *The Chinese Journal of ICT in Education*, v. 16, n. Suppl, p. 48–49, 2015. COTTER, K. N.; PRETZ, J. E.; KAUFMAN, J. C. Applicant extracurricular involvement predicts creativity better than traditional admissions factors. *Psychology of Aesthetics, Creativity, and the Arts*, v. 10, n. 1, p. 2-13, 2016. <https://doi.org/10.1037/a0039831>

¹² STEVENSON, Harold W.; STIGLER, James W. **The learning gap**: Why our schools are failing and what we can learn from Japanese and Chinese education. New York: Summit Books, 1992, p. 52-53.

do not see education as being essential to their life, in contrast to the majority of Chinese children, American children spend significantly less time on schoolwork at home¹³.

Second, conformity is emphasized much less in American classrooms than in Chinese ones, because teachers have more diverse views of success and are more tolerant of differences.

Third, American parents' broader conception of student success and less emphasis on external indicators allow students to "feel good" even if they excel in areas other than academic subjects.

In order to ensure that students learn the required knowledge and abilities and demonstrate their mastery in standardized tests, the Chinese implementation is very effective and efficient. The implementation is less successful in guaranteeing that all students learn the same information and abilities in the United States because of the cultural diversity, local control, and more inclusive definition of success. However, this less successful approach also makes it possible for individuals who stray and are unique to survive. These are the kind of creative people China wants.

In other words, what makes Chinese students perform so well is also what prevents China from producing creative people. Similar to how American society produces more innovative people, American children achieve only average scores in foreign exams.

4.4 Structure

This moment in education brings with it the opportunity to redesign learning spaces, roles, opportunities and pedagogy. Changes in the future role of the teacher are already beginning. Leaders must hold the space for teacher innovation. Imagine assigning teachers in terms of teacher preferences and strengths. Imagine a world where social networking is used as a basis for determining student interests, the focus of student learning and teacher assignments designed to support those interests. What if learning spaces evolved to enable teams to accomplish projects through active learning opportunities in and out of schools. These are the variables that leaders in China are investigating. While they are not the first to encounter these questions, China's single-mindedness may make it uniquely capable to facilitate rapid learning. China is on a fast track to make breakthroughs in learning strategies and environments. As China eagerly learns from countries and leaders throughout the entire world, it can offer valuable lessons to the field of education as it innovates, recreates and redefines educational practices, systems and approaches to long standing challenges. Once

¹³ STEVENSON, Harold W.; STIGLER, James W. **The learning gap**: Why our schools are failing and what we can learn from Japanese and Chinese education.

China begins to implement its learning on a large scale, the world may do well to watch and learn from its efforts. Hopefully, we can learn together.

To understand the context and the inherent challenges for China to revamp its pedagogy in the interest of enhancing creativity, it will help to peer into the curriculum reform process in China and the complexity of the pedagogy that accompanies learning their language and content.

4.5 Reform in China

The Chinese government periodically changes its curricula to meet current and anticipated future needs as the world is becoming more globalized and diverse, and information and technology will probably soon replace human beings in many jobs. As the Ministry of Education announced the curriculum programs and standards in early 2018, work for compulsory education was initiated in early 2019. This new round of curriculum changes is based on core competencies and aims to prepare students to deal with authentic problems. The core feature of China's experience is coherent design and linear implementation. The bigger idea of core competencies and more focused subject-based core competencies are China's attempt to implement its standards in all aspects of teaching, learning, and assessment in daily practice.

China has a tendency to implement promised reforms in deliberate, planned, responsive, and systematic "Chinese" methods, as it did with its most recent round of extensive curricular reform. A new institutional setting for embracing, rewarding, and supporting innovations is made possible by curriculum reform. Teachers are being forced to follow an accelerated framework that will bring about adjustments and diverse teaching methods. Although enticing, these modifications are typically haphazard and superficial. The changing environment and imperatives have presented opportunities for change. However, in the case of China, the top-down system and coordination are a double-edged sword¹⁴. It is still necessary to originate, question, emerge, and scale up disruptive changes and challenges in curriculum, learning, and schooling in China.

5. LEARNING METHODS IN MODERN CHINA

Traditional teaching in China often uses the dogmatic method, which ignores the use of natural resources, and isolates learning activities from the real world. Simple verbal

¹⁴ HUANG, F. Building the world-class research universities: A case study of China. **Higher Education**, v. 70, n. 2, p. 203–215, 2015.

thinking not only upsets the balance of the two signaling systems but also gradually leads to the fact that children use the second signaling system rarely and inefficiently.

Chinese educators combine learning theories specific to China, borrowing experience from other countries such as Japan, and America and European countries such as Germany, England, and Bulgaria.

For 6–7-year-old children entering elementary school, literacy is vital because the study of any subject cannot be done without reading. Teaching literacy to children of preschool and primary school age, in terms of a modern approach and appropriate pedagogical process, should be based on the learning capacity and mental characteristics of children.

For example, the modern method of teaching literacy was introduced by the director of an elementary school in Liaoning Province, teacher Jiang Zhaochen. This method participated in the 1986 rhyming text literacy experiment. It was named "Jiang Zhaochen's rhyming text literacy method." Rhyming text literacy is the only literacy method in China that has been approved by the Chinese government¹⁵.

This method improved the Chinese traditional method of teaching literacy, which enabled a 6-7-year-old child to recognize more than 2,000 characters in one year with the usual approach to the educational text. The efficiency of this method allows for 5 times improvement in the quality of education compared to with a common teaching method.

Features of the method of **teaching literacy in rhymed text** are:

1. The method preserves the basic rules of the Chinese language: firstly, literacy is the basis of reading and writing; secondly, hieroglyphs do not depart from the word, words do not depart from the sentence, sentences do not depart from the text.

2. The method follows the patterns of cognitive activity of the child. A Japanese expert in teaching Chinese writing, Dr. Ishii, after 30 years of research, showed that the thought processes of a child and an adult are opposite. A baby first remembers and then understands. Analytically, the perception of an adult is like painting a portrait and the holistic perception of a child is like taking a photograph¹⁶.

3. The method takes into account the characteristics of the child psyche, allowing them not only to study hieroglyphs but to study them along with the text. The texts are presented in the form of a rhymed form and contain natural, social, humanitarian, moral, and

¹⁵ KELLOGG, R. P. China's brain gain? Attitudes and future plans of overseas. *Journal of Chinese Overseas*, v. 8, n. 1, p. 83–104, 2012.

¹⁶ LI, D.; REMEDIOS, L.; CLARKE, D. Chinese students' groupwork practices and experiences in China. *Higher Education*, v. 68, n. 2, p. 227–241, 2014.

other types of knowledge. The content of the texts is built taking into account the present, close to the life of the child, so children have a steady interest in learning

In the past twenty years, one of the most common teaching methods in Chinese kindergartens and elementary schools has become the “Situation and Emotion Method”, proposed by the famous Chinese teacher Li Jilin. This method is based on the theory of suggestopedia, which was created by the Bulgarian researcher G.K. Lozanov. The situation and emotion method is used when working with children in the process of teaching languages and social sciences. It stimulates the feelings and emotions of students and activates their cognitive activity¹⁷.

How to implement this method			
<p>Student Engagement</p> <p>Involving students in the situation during the new lesson.</p> <ul style="list-style-type: none"> - Cognitive activity latent in the child - create an aesthetic sense <p>The teacher (educator) must consciously involve students in the situation step by step so that they feel that “the situation is before my eyes” and “I am in this situation”.</p>	<p>Optimizing the situation</p> <p>To combine a language image with an appropriate background (music or picture), we create an imaginary situation. And in this situation, students experience different emotions and feelings.</p>	<p>Sensual emotional activities</p> <p>Based on the situation, cognitive activity is wonderfully combined with sensual emotional activities.</p> <p>Such emotional-figurative stimulation activates the work of the left hemisphere of the brain.</p>	<p>Lesson Extension</p> <p>Extension of the situation guides the student through gradual study of the surrounding world</p>

5.1 What does this have to do with the future of innovation?

Innovation is a pervasive phenomenon that integrates 'pre-existing possibilities and components¹⁸ in novel ways, resulting in technical, social, and economic change. Importantly, it is not simply the invention itself that generates innovation, but its effective

¹⁷ LAI, M.; LO, L. N. K. Struggling to balance various stakeholders' perceptions: The work life of ideological education teachers in China. **Higher Education**, v. 62, n. 3, p. 333–349, 2011.

¹⁸ LI, D.; REMEDIOS, L.; CLARKE, D. Chinese students' groupwork practices and experiences in China. **Higher Education**, v. 68, n. 2, p. 227–241, 2014; LUNDEVALL, B.A. **National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning**. London: Pinter Publishers, 1992.

integration and use in society. Measuring or predicting innovation is a difficult, and some argue, impossible endeavor. What are appropriate indications of innovation, and which signs are both essential and sufficient for the occurrence of innovation?

If we consider this, there are two approaches to connect higher education with innovation. On the one hand, universities are meant to develop innovative human capital; on the other hand, universities may become targets of innovation, such as in curriculum, teaching and learning, and higher education management. The dual function of higher education as both a driver and a location of innovation stems from the fact that education and innovation share a number of traits that are believed to be required for both to function well. To adapt new ideas or products, innovation systems must be capable of learning, which necessitates actors who understand how to learn and interact.

Until recently, individual private sector enterprises carried out the majority of Shenzhen's innovation activities, with universities playing a less important role. Universities, on the other hand, have recently made a far more active contribution to innovation and innovative entrepreneurship in China. A variety of factors are driving this new trend, one of which is the increased active engagement of Hong Kong institutions. Another element is the cross-border movement of information and technology. Human and economic resources also influence university engagement in innovation and the dynamics of universities, industry, and government.

The wide disparities in the growth of China's regional economic, social, and cultural components have resulted in a major imbalance in education development. Since the second decade of the twenty-first century, the Chinese government has elevated ICT in education to a strategic position and strongly supported ICT in education development and implementation throughout China, in order to rectify the imbalance and enhance educational quality¹⁹.

The establishment of "classroom communities" has been emphasized as part of the international movement toward student-centered learning. One example is China's current education reform, which strives to rethink its educational philosophy and practice by providing students with a dynamic and engaging learning environment. The ambitious and countrywide reform, which impacts all elements of basic education teaching and learning, is an attempt to enable China to satisfy the needs of excellent education in the globalization age.

With regard to the process of teaching and learning, the Chinese education system prioritizes the creation and development of an audience for students. Although the term "classroom community" is not specifically mentioned in education reform documents, it is

¹⁹ LOVELESS, T. **Lessons from the PISA-Shanghai controversy**. Washington, DD: Brookings Institution, Brown Center on Education Policy, 2014.

mentioned for educational purposes. According to China's Ministry of Education, the reform aims to move from a "complex, biased and outdated" curriculum that overemphasizes textual knowledge in classroom teaching to one that is more responsive to student learning needs.

FINAL CONSIDERATIONS

The result prompted the following policy recommendations: Strengthen the link between curriculum content, student life and contemporary social and technological developments; concentrate the learning interests and experience of students;

It is impossible to appreciate or explain the nature of Chinese investment in developing a culture of innovation and creativity without ignoring the fact that China is, at its core, a centrally planned economy. In terms of national priorities, the central government allocates funds to provinces, etc. Thus, even the smallest area in China can be observed to encourage "Ten thousand types of entrepreneurship and innovation", which is manifested in a huge number of amazing laboratories, workspaces and business incubators as well as a massive number of fantastic laboratories, workspaces, and company incubators. Lego classes for creativity and hackathons are held several times a day across the country, therefore attention needs to be focused on developing this culture at universities across China. Under a government mandate, universities around the country have established new schools dedicated to innovation called the School of Innovation, the School of Innovation and Entrepreneurship, or the School of Entrepreneurship and Management, both domestically and internationally²⁰.

From a policy perspective, the Ministry of Education (MOE) has issued specific policies to support innovation and entrepreneurship, including a policy allowing students to take one year off to pursue an entrepreneurial venture.²¹In 2015, the MOE suggested that all universities provide eligible courses in entrepreneurship for credit (compulsory and selective) to all students.²²By 2016, 82% of Chinese universities had introduced compulsory and elective courses in innovation and entrepreneurship (an increase of 14% compared to the previous year). Similar reform efforts and investments in the spheres of vocational education and the

²⁰ OECD. **PISA 2012 results**. Creative problem solving: Students' skills in tackling real-life problems. Paris: OECD, 2014.

²¹ MINISTRY OF EDUCATION OF THE PEOPLE'S REPUBLIC OF CHINA (MOE). **Jiaoyubu bangongting guanyu tuijin shishi gaoxiao sixiang zhengzhi lilunke tepin jiaoshou zhidu de tongzhi**. 2016. Disponível em: <http://www.moe.edu.cn/srcsite/A13/moe_772/201604/t20160412_237724.html>. Acesso em: 15 mar. 2024.

²² MOK, K.-H. Globalization and educational restructuring: University merging and changing governance in China. **Higher Education**, v. 50, n. 1, p. 57-88, 2005. Disponível em: <http://www.jstor.org/stable/25068089>. R

equivalent of community colleges are also ongoing in China. Innovation education and its accompanying activities are occurring at every level of post-secondary education.

As we can consider, we can make an example for this innovation world. In any corner of the world, anyone who can access the Internet can enroll and learn Massive Open Online Courses (MOOCs) free of charge, which has been deeply influenced by the campaign of open educational resources. As the name implies, MOOCs are open, shareable, and massive. A MOOC opens not only educational resources but also the whole process of teaching and learning. Many famous universities around the world are now involved in the construction of MOOCs, similar to the Chinese universities²³.

Thus, we can conclude that at present, Chinese universities are strengthening their positions both inside and outside of China, rising in the list of the best innovative universities in the world. The number of startups incubated makes it clear that further research is needed on the innovation and innovation culture of Chinese universities and their impact on China's economic life. Commercial cooperation between enterprises and universities also provides an opportunity to further develop the culture of innovation in Chinese universities, in order to propel China's economic development. For the further effective development of the culture of innovation in Chinese universities, it is recommended that close attention be paid to innovative start-ups and their financing, since at present, most of the technologies and ideas come from China.

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²³ REN, Y. Q.; LU, B. R. The top-level design of ICT in education during the thirteenth five-year plan. **e-Education Research**, v. 36, n. 6, p. 5–14, 2015.

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