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# The Convergence of Divergent Roads: Comparisons of China and U.S. School Systems

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## Abstract

After decades of refining their brand of educational system, China and the United States have recently embarked on extraordinary changes and modifications that could have long-term consequences. China is moving from a very controlled and disciplined education system, while the United States is rapidly changing to a very controlled and disciplined education system. Chinese education is becoming more innovative and creative, while the United States is becoming less expressive. The two countries are looking at each other and changing education to match their competitor. The long-term consequences are unknown but a few implications are obvious.

## Introduction

While American politicians are excoriating American education and moving to nationalize learning through the Common Core States Standards Initiative, the Chinese government is quietly changing their nationalized curriculum (Yang & Frick, 2007). The ultimate goal—build more creativity in Chinese students who are historically high performing in international assessments (Adams & Sargenty, 2012). Chinese students outperform American peers on international tests in mathematics and literacy, but are purported not to be as creative, innovative, entrepreneurial and therefore do not produce as many inventions and patents (Chen, 2004; Dello-Iacovo, 2009; Xiao-jiang & Xue-ting, 2012; Xu, 2007; Zhao, 2012).

Educational reform is targeted in both the United States and China (Coppola & Zhao, 2012; McKinsey Global Initiative, 2010). Chinese schools are heavily structured; less curricular structure is desired as Chinese students perform exceptionally academically but are less creative (Walker & Qian, 2012). American schools are less structured with individual states, districts, and schools making curriculum decisions, but American students do not perform as well as peers on international assessments of learning (Kelly & Turner, 2009). New federal policies driven by the Common Core States Initiative were designed to add more structured grade level curricula for American students in order to provide a workforce ready to compete in the global marketplace (Hanushek, Peterson, & Woessman, 2012; U. S. Department of Education, 2011).

Historically, the U.S. educational system has produced skilled high school and college graduates who positioned the American economy as the best in the world (Connelly & Zheng, 2003). With American productivity falling, business and political leaders as well as foundations are frantically pushing educators to ensure that American students can be as innovative and competitive as they were in the 20th century (Advisory Commission on Measuring Innovation in the 21st Century Economy, 2008; U.S. Department of Commerce, 2012).

In China, the degree of educational competition is increasingly severe and furious (Gu, 2006). However, the basic problems in education constitute a serious social issue which is subject to disparaging and acquisitive public commentary (Jin, 2005). However, the often hostile criticism of education is interconnected to inequalities, indiscriminate fees, and the largely unscientific examination systems that dominate Chinese education (Hui, Lee & Rousseau, 2004). Providing education to the many segments of the Chinese population means confronting inequalities intensely engrained in history, culture and economic elements (Li, 2005).

In recent years in China, there has been growing apprehension that examination competition has contaminated classroom teaching and learning and created a culture of competition that was detrimental to developing a global knowledge economy (Qi, 2007). These concerns spawned education reforms known as the New Curriculum (Xu, 2007). These reforms were intended to make students the center of teaching and learning. In addition, the reforms focused on transforming teaching and learning to foster creativity, innovation, collaboration, and self-expression (Xie, 2001). The continual implementation of reform policies has fostered a new outlook in Chinese schools but the continued reform applications have profoundly changed schools and caused great anxiety among teachers (Zhu & Han, 2006).

The Chinese government promotes a revised school curriculum reflecting a more complete approach to education known as suzhi jiaoyu ("quality education") (Jia, 2006). The massive educational reforms place education in the Chinese historical, educational, social and economic framework which is not conducive to change (Curran, 2005). The implementation of the reforms is constrained by insufficient resources (financial and human), academic ambiguity and conformist opposition (Guan & Meng, 2007). In addition, many researchers see American education as more complex because there are 50 different systems of education while China has one system (Cheng & Ma, 2008).

## Changing Goals for China

China's educational system and system of national exams was initiated during the Sui Dynasty (581–618); students took the keju, the imperial exam (Zhao, 2012). Since 1949 China has followed the Soviet Model of education which strongly emphasized the transmission of knowledge by the school, rigid educational disciplines and a centralized form of management (Lu & Zhang, 2000). Since the 1986 educational reform movement, Chinese students are mandated to attend school for nine years, spending six years in elementary school, three years in junior high school, and if scores are high enough, attending three years of senior high school (Walker & Dimmock, 2000). Curricula and textbooks are standardized following a "Confucian tradition of conformity, hierarchy, and respect for authority" (Zhao, 2012, p. 40). Teachers lecture; students listen, thus "the result has been a highly disciplined but docile workforce" (Zhao, 2012, p. 40).

Students spend much of their time preparing for mandatory high stakes, yearly national exams, which must be passed to continue their education (Huang, 2004). Once Chinese students finish the mandatory nine years of school, they must compete on annual exams in order to move to high school and then ultimately attend a university. The basic education reform that is now underway in China is one of the most multifaceted, determined, and comprehensive in the world (Kipnis, 2011). The reform symbolizes essential changes in the underlying attitudes and practices of Chinese education, the largest and oldest public education system in the world (Peng & Plucker, 2012).

Students take classes in Chinese, math, physical education, music, art, morals and society, and practical work (China Daily, 2013). Chinese and math are considered the most important subjects

with 60% of the day spent on these subjects, which are assessed on national exams (Sargent, 2009). Gaokao, The National College Entrance Exam, begins each June 7th, and targets knowledge of dates and names. Chinese language exams are composed of essays, graded based on the inclusion of verbatim quotes from classical texts (Zhang, 2006). In order to motivate teachers and headmasters, a bonus structure and an evaluation system are in place, which are both based on student performance on the Gaokao exam (Zhong, 2006). Researchers estimate that 40% of Chinese middle school students work more than 12 hours per day, seven days a week, and 58.3% of students work six days a week, to prepare for the entrance exam to high school (Fleisher & Wang, 2005).

In China the education reform movement has sought to eliminate the drill-and-kill teaching style by implementing a problem-based learning approach (Halstead & Zhu, 2009). The prior curriculum in China was elitist and relied on rigid examination to choose scholars for the imperial bureaucracy (Heckerson & Xueson, 2004). The goals of the new curriculum are not incorporated into the examinations and frequently conflict with teacher, student and parental goals in a society where examination outcomes have life-long consequences (Sahlberg, 2006). Thus, while U.S. school systems test every student every year, some top-performing systems such as Finland have largely dispensed with national examinations, conducting only periodic assessments of student performance, which is now the Chinese model (Zhao, 2013). Similarly, Chinese schools which perform well are subject to less monitoring, whereas U.S. schools which perform poorly are subject to more intensive scrutiny and subject to more frequent reports until their performance improves (Ryan, Kang, Mitchell & Erickson, 2009).

China has 200 million school age children with classes averaging 50–60 students. Education is regarded as a top priority in China by the Chinese government who controls all schools; parents also emphasize the importance of education (Halstead & Zhu, 2009; Kelly & Turner, 2009). Curricular emphasis includes obeying elders and listening to parents and teachers (Harris, Zhao & Caldwell, 2009). Selflessness, respect, and teamwork are also emphasized (Hui, Lee & Rousseau, 2004; Lo, Lai & Wang, 2013). Students remain in the same classrooms while teachers move to them (Dello-Iacovo, 2009; Jin, 2005; Qi, 2007). Students start English language classes beginning in elementary school (Halstead & Zhu, 2009; Wang & Lam, 2009).

Senior high school education is not subsidized and students may not attend college preparatory high schools unless parents can provide financial support (Halstead & Zhu, 2009). About one-third of students are admitted to post-secondary education. Students not entering college preparatory programs attend vocational technical programs (Phillips, 2012). There are no choices for students in what they want to learn; students take the same classes regardless of their talents or interests (Huang, 2001; Walker & Qian, 2012; Zhong, 2006; Zhu & Han, 2006).

China's "National Plan for Medium-and Long-term Education Reform and Development Plan" is designed to increase investment in education with the ultimate goal "to improve the overall quality of education" (Zhao, 2012, p. 38) and to become more internationally competitive; China has become more interested in expanding the vision of the Chinese education system to include creativity and innovation, and ultimately, entrepreneurship (Bosworth & Collins, 2008; Chen, 2004; Fleisher & Wang, 2005). The reform plan was piloted in Shanghai and Hong Kong (Zhao, 2012).

The Organization for Economic Cooperation and Development released the reform curriculum as follows:

> The reform curriculum has three components: the basic curriculum, to be experienced by all students, mainly implemented through compulsory courses; the enriched curriculum,

> which aims to develop students' potential and is realized mainly through elective courses, and inquiry-based curriculum, which is mainly implemented through extra-curricular activities. The inquiry-based curriculum asks students, backed up by support and guidance from teachers, to identify research topics based on their experiences. It is hoped that through independent learning and exploration, students can learn to learn, to think creatively and critically, to participate in social life and to promote social welfare. (OECD, 2011, p. 93)

Xiao-jiang and Xue-ting (2012) report extra-curricular programs to develop students' creativity are being added to school activities. University competitions such as The Challenge Cup are also being added to post-secondary education (Atkinson, 2012; Chen & Kenney, 2004). Sahlberg (2006) pointed out, "Many advanced education systems are focusing on flexibility, creativity, or problem-solving through modern methods of teaching" (p. 3).

## Changing Goals for America

For America to remain globally competitive, it is necessary to have a workforce that is well educated (Council on Foreign Relations, 2012; Epstein, 2004). The American education structure has historically not been as federalized as other countries. The Council on Foreign Relations (2012) suggests educational reform in American "can reshape education in the United States and put this country on track to be an education, economic, military and global leader" (p. 43). Epstein (2004) reported educational governance in America as a mélange of local educational boards and superintendents and state education boards who must balance local needs and follow state guidelines as well as federal authority in terms of the U.S. Department of Education and other outside agencies—"a messy democratic governance system" (p. 2). Much of the issue with governance in American education stems from the lack of direct federal oversight (Levin, Muennig, Rouse & Rouse, 2009). Due to the reserve clause of the U.S. Constitution, authority is not specified for education and thus the American model of governance for education loosely evolved during the 18th, 19th, and 20th centuries (Epstein, 2004; National Commission on Educational Excellence, 1983).

Additionally, the loosely coupled governance is accompanied by financial structures based on local economies, supplemented by state and federal funding; variances in funding allow schools and districts that are better funded to have more services than those with lesser financial resources (Darling-Hammond, 2010). Local funds, usually property taxes, depend on the wealth of the community; wealthy districts have more money to spend on education than do poorer neighborhoods (Downey, von Hippel & Hughes, 2008).

The drive to reform through the establishment of the Common Core States Initiative is an attempt to establish one standard structured curriculum for all American students, specifically targeted to prepare a workforce ready to compete in the global marketplace (Johnson, 2007; Paine & Schleicher, 2002). Darling-Hammond (2010) writes the goal of current American school reform is the need to create more "internationally competitive" (p. 285) standards.

While American Indians and people of color were once denied access to education, 12 years of American education are now available to all. Indeed, the overarching goal of No Child Left Behind (NCLB) was to ensure American children have access to "a fair, equal, and significant opportunity to obtain a high-quality education" (U.S. Government, 2002, §1001). Unlike Chinese students, American students do not have to compete for a place in senior high education. However, a problem that has developed in America is the issue of students not completing senior high school; they drop out (Laird, Cataldi, KewalRamani & Chapman, 2008). Darling-Hammond (2006)

reported graduation rates are fifteen percent lower in the United States than in European and Asian nations. "Lack of education is the loss of opportunity and progress for individuals and society" (Darling-Hammond, 2006, p. 15).

According to Fleishman (2010), American high school graduation rates have been among the lowest, ranking 18th of 24, in industrialized countries' graduation rates. Murnane (2013) reported that 30% of American students do not take advantage of the availability of 12 years of education. He also noted modest but steady improvement including a high school graduation rate that increased by 6.5 percentage points from 2001 to 2010.

State governors and state legislative members striving to make their state economies globally competitive have demanded higher student academic achievement in order to generate productive workforce members (Hanushek, Peterson, & Woessman, 2012). High school graduation and overall educational attainment are key factors, with high school graduation considered a minimum goal for job attainment and for basic wages (Levin, 2009). The United States falls behind other nations in high school graduations (Levin, 2009; OECD, 2010) but Levin (2009) suggests that the economic benefits of high school graduation provide societal benefits as the graduates hold jobs, pay taxes, and do not need public assistance.

Overall American graduation rates for minority, Black male students range as low as -43%—with -48% rates for Hispanics (Levin, 2009). According to Johnson (2007), Hispanic students are gaining on African American students and eventually will have higher dropout rates. The national graduation for White males rate is 71% with White female graduation rates similar though higher (Levin, 2009). The ultimate result of students dropping out is that their lifetime incomes will be significantly less and their children's children are more likely to become high school dropouts (Laird, Cataldi, KewalRamani, & Chapman, 2008).

Educational attainment or high school completion rates affect global competitiveness (Laird et al., 2008; Marginson et al, 2010). As jobs have evolved from being manual to more technical in nature, higher level abilities are needed; yet, current American achievement on international assessments is lagging (Rothstein & Jacobsen, 2006). Performance in math and science is dramatically different and American children do not score as well as their peers in other countries (Duncan, 2010). National tests such as the National Assessment of Educational Progress (NAEP), as well as international tests such as Programme for International Student Assessment (PISA) and Third International Mathematics and Science Study (TIMSS), have scores that do not reflect proficiency levels for many American students (Duncan, 2010).

## Valuing Education: A China Perspective

Education in China has traditionally been a method to change social status, achieve a good job, and thus achieve a higher income (McKinsey Global Institute, 2010; Fleisher, Sabirianova & Wang, 2005). While high scores on the Gaokao are valued, China is recognizing high scores but low abilities to think critically, communicate, collaborate, and be creative, do not promote innovation (Coppola & Zhao, 2012; Harris, Zhao & Caldwell, 2009). Scores, which reflect "regimented, uniform, standards-based education that has dominated Asian education systems for thousands of years" (Chen, 2004, p. 1) do not encourage entrepreneurship. Coppola and Zhao (2012) suggest:

> China is beginning to understand what our [American] real strength has always been: by embracing a broadly divergent array of knowledge and experience, we bring diverse and unexpected perspectives to any problem or situation, allowing us to adapt rapidly to change. By not standardizing anything, we end up being able to handle everything. (p. 2)

Zhao (2012) suggests what is valuable in American education is individualism–the ability of children to make a choice. China started educational reform in 1999 and again in 2001 by opening curricula choices and allowing students some choice subject matter in which they were interested, with the admonition such choices must still "equip students with patriotism, collectivism, a love for socialism, and the Chinese cultural traditions, as well as moral-ethic values, democratic spirits with Chinese characteristics" (Zhao, 2012, ¶ 12). Chinese goals are to have the world's most skilled, innovative, dynamic workforce (Bradsher, 2013). Thus the Chinese government has made commitments to reach newly targeted educational goals:

1. Increase preschool attendance 50% by 2020.
2. Graduate 95% of students from high school.
3. Students admitted to high school will not face barriers due to financial reasons.
4. Higher education enrollment will be doubled.
5. The number of teachers and the quality of teachers in primary, secondary, and higher education will increase (Zhao, 2012).

## Valuing Education: A United States Perspective

American education goals initially were political; education's overall goal was to help the citizenry be able to govern (Epstein, 2004). Character traits such as honesty, integrity, and compassion were also emphasized. Rothstein and Jacobsen (2006) reported Benjamin Franklin said, "Questions of right and wrong, justice and injustice, will naturally arise" as students debate historical issues "in conversation and in writing" (p. 16). Students, Franklin insisted, should also read newspapers and discuss current controversies, "thereby developing their logic and reasoning" (Rothstein & Jacobsen, p. 17). Schools evolved by the 19th century and labor unions pushed reading and writing as academics fit for the working class (Rothstein & Jacobsen). However, with the dip in graduation rate it seems that education is being devalued in the United States while being valued in China (Baker & LeTendre, 2005; Cooper, Hersh & O'Leary, 2012). While overwhelmed by curriculum standards and other reforms, American teachers speculate there's no room for creativity, while Chinese teachers embrace the need for adding creativity to the curriculum (Davis & Roblyer, 2005; Jayasurya, 2001; Yang & Frick, 2007).

American education usually has a single pathway to a high school diploma (Porter, Rolikoff & Smithson, 2009). Other high performing countries such as Finland offer career and technical programs, which 45% of students chose to complete their education (Hurt, 2008; Phillips, 2012). Chinese students can also move into a vocational diploma track, though like in the United States, a baccalaureate degree holds higher esteem (Bradsher, 2013; Schleicher, 2013).

## Staying a Global Leader

The Council on Foreign Relations (2012) suggests:

> In many ways, the United States remains a global leader: its scholars win the most Nobel Prizes; its companies hold the most science and technology patents; and its armed services are, by many measures, the strongest in the world. However, no country in the 21st century can rest on its laurels or be truly secure by military might alone. Human capital will determine power in the current century, and the failure to produce that capital will undermine America's security. (p. 4)

China's education structure reforms are deliberate attempts to become more globally competitive (Cooper, Hersh & O'Leary, 2012; Dello-Iacovo, 2009). Science and engineering degrees dominate university degrees in China (Atkinson, 2012). Thirty-three percent of Chinese

students graduate with a degree in engineering (OECD, 2010). According to the Council on Foreign Relations (2012), American schools are not graduating enough scientists, mathematicians, and engineers (Sahlberg, 2006). The Council on Foreign Relations (2012) suggests the future of the United States is at risk if educational reforms are not addressed swiftly. Levin (2008) contends American schools have too much emphasis on "fun, flexibility, and learning styles" to develop and sustain a competitive advantage (p. 21). However, around the world, many countries, including China, are making creativity development in schools a national priority (Guan & Meng, 2007; Guo, 2005; Kang, Givson, Khoo & Semple, 2006; Lan & Kaufman, 2012).

In 1983, The National Commission on Excellence in Education suggested America was at risk as students were "scientifically and technologically illiterate" (p. xi). Like China, the United States is also attacking education reform again; goals have not changed and concerns about scientific and technological literacy still pervade (Johnson, 2007). Like China, the goal for American education reform is to keep America economically and globally competitive (Levin, Muennig, Rouse & Rouse, 2009). Unlike China, less than half of American college graduates major in science, technology, engineering, and mathematics fields (Cooper, Hersh, & O'Leary, 2012). Fewer American students are going into fields of mathematics, science and engineering in college (Hanushek, Peterson, & Woessman, 2012). Unlike China, American students are often forced to take college remedial courses (Council on Foreign Relations, 2012; Schleicher, 2013).

Chinese education structure reforms include expanding preschool education programs, increasing the number of high school graduates, increasing higher education enrollment, and increasing teacher quality (Wang & Lan, 2009). America's structural reforms for education target student performance, but unlike China, there is no financial support attached to expand programming (Coppolo & Zhao, 2012). Zhao (2013) reports China is retracting its structural rigidity of testing, homework, and tracking, citing the *Ten Regulations to Lessen Academic Burden for Primary School Students*, which include:

1. Transparent admissions. Admission to a school cannot take into account any achievement certificates or examination results. Schools must admit all students based on their residency without considering any other factors.
2. Balanced Grouping. Schools must place students into classes and assign teachers randomly. Schools are strictly forbidden to use any excuse to establish "fast-track" and "slow-track" classes.
3. "Zero-starting point" Teaching. All teaching should assume all first grade students begin at zero proficiency. Schools should not artificially impose higher academic expectations and expedite the pace of teaching.
4. No Homework. No written homework is allowed in primary schools. Schools can, however, assign appropriate experiential homework by working with parents and community resources to arrange field trips, library visits, and craft activities.
5. Reducing Testing. No standardized testing is allowed for grades 1 through 3; for 4th grade and up, standardized testing is only allowed once per semester for Chinese language, math, and foreign language. Other types of tests cannot be given more than twice per semester.
6. Categorical Evaluation. Schools can only assess students using the categories of "Exceptional, Excellent, Adequate, and Inadequate," replacing the traditional 100-point system.
7. Minimizing Supplemental Materials. Schools can use at most one type of materials to supplement the textbook, with parental consent. Schools and teachers are forbidden to

recommend, suggest, or promote any supplemental materials to students.

8. Strictly Forbidding Extra Class. Schools and teachers cannot organize or offer extra instruction after regular school hours, during winter and summer breaks and other holidays. Public schools and their teachers cannot organize or participate in extra instructional activities.
9. Minimum of One Hour of Physical Exercise. Schools are to guarantee the offering of physical education classes in accordance with the national curriculum, physical activities and eye exercise during recess.
10. Strengthening Enforcement. Education authorities at all levels of government shall conduct regular inspection and monitoring of actions to lessen student academic burden and publish findings. Individuals responsible for academic burden reduction are held accountable by the government. (Zhao, 2013)

China is also working to increase the number of senior high school graduates, ensuring that capable students are not turned away from high school due to the inability of the parents to pay for education (Atkinson, 2012; Klein, 2013, Xiao-jiang & Xue-ting, 2012). America's high school graduation rates are slowly increasing but dropping out is a choice for many American students (Darling-Hammond, 2006). The United States used to rank first in high school graduation rates, but currently ranks 21st out of 26 OECD countries (Fleishman, 2010; Schleicher, 2013). Educational attainment or high school completion rates affect global competitiveness (Laird, Cataldi, KewalRamani, & Chapman, 2008) which must create concern for U.S. educational leaders.

Additionally, Darling-Hammond (2006) reported graduation rates are 15% lower in the United States than in European and Asian nations and are still declining in comparison with other highly industrialized countries. "Lack of education is the loss of opportunity and progress for individuals and society" (Darling-Hammond, 2006, p. 15). High school graduation is considered a minimum goal for job attainment and for basic wages.

## Observations

Finally, like America, China is addressing the issue of teacher quality (Davis & Roblyer, 2005; Xie, 2001; Zhu & Han, 2006). Paine and Schleicher (2002) report:

> International comparisons show that in the countries with the highest performance, teachers are typically paid better relative to others, education credentials are valued more, and a higher share of educational spending is devoted to instructional services than is the case in the United States. (p. 4)

In many high performing countries such as Finland and Singapore, teachers are viewed as professionals in the same status with doctors and lawyers (Harris, Zhao & Caldwell, 2009). In Finland, only one of ten applicants is accepted for teacher training and in Singapore only top performers are accepted to go into teaching (Lee & Yin, 2011). Teacher trainees are offered stipends while training and salaries are competitive with other professional fields (Lee, Yin, Zhang & Jin, 2011). In the United States teachers are not highly paid and not as highly regarded as doctors and lawyers (Lo, Lai & Wang, 2013). Attracting high caliber students to be teachers is not easy as other professions are paid better and carry more social status.

There is also a growing tendency to align educational standards globally (Chien & Hui, 2010), particularly in reference to those of the OECD's PISA assessments and other leading school assessment systems (OECD, 2010). Obviously, the educational systems of the U.S. and China will try to match current teaching to the country's future requirements (Curran, 2005; Peng & Plucker,

2012; Zhang, Zhao, Park & Song, 2005). The task of the Chinese and American educational leaders will be to ensure that their educational institutions sustain exceptional learning and knowledge production combined with growing autonomy and globalization (Dello-Iacovo, 2009; Paine & Schleicher, 2002; Ryan, Kang, Mitchell & Erickson, 2009; Xu, 2007; Yang & Frick, 2007; Zhao, 2012).

China must transform from not just a large education country to a robust, powerful education country with a focus on exchanging exam-oriented education with quality education, eliminating the negative impacts of exam-oriented education and developing innovative capacities (Guan & Meng, 2007; Halstead & Zhau, 2009; Sahlberg, 2006; Zhang, 2006). Understandably, Chinese educators are apprehensive (Yang, 2004). The anxiety originates from the incongruence between their professional outlook, which is intimately linked to student academic achievement (old form of education), and the dictates of state reform measures, which seek to broaden the conception of education to include other areas of human development (new form of education) (Marginson, et al, 2010).

The United States must reform decades of declining educational productivity coupled with a loss of societal support. The move to a more disciplined and rigorous curriculum is predicted to be the final reconstruction of public education in America.

Is either country right or wrong? Probably not, but the execution of changing direction, modifying procedures and altering outcomes are problematic. The goals basically remain the same: producing educated citizens for a global economy, but the strategies for reaching that goal have dramatically changed. Can those who implement the changes be convinced to modify and adapt to new procedures and techniques? The results will be dramatic regardless.

Educational research has given each country more data with which to make informed decisions about education in each country. However, data do not mean that the application will be appropriate or viable. The major challenges faced by each country will dedicate success. Globalization, diversity, and social concerns will be major challenges. Typically, think locally for improvement and think globally for reform and initialization of changes. Each country has tremendous economic and political power, but do they have enough power to change the educational culture created over decades? The convergence of divergence implies that the educational systems of the two counties are moving toward more commonality and cohesion.

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