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Gifted education in modern Asia: Analyses from a systemic perspective

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Abstract
When we were invited to comment on chapters describing gifted education in Asian countries, we were reminded of Mikhail Gorbachev’s famous dictum “Life punishes those who delay.” Asian countries entered gifted education and research on excellence relatively late compared to many Western nations (e.g., Stern, 1914). Nevertheless, there are examples that suggest the opposite may be true, that is, latecomers might also have some advantage. A famous example for the latter claim is the case of the Golden Gate Bridge and the Akashi Kaikyo Bridge. Both are suspension bridges linking the U.S. city of San Francisco to Marin County and the Japanese city of Kobe on the mainland of Honshu to Iwaya on Awaji Island, respectively. When the construction of the Golden Gate Bridge began in 1933, the longest span of 1,280 meters seemed almost impossible to build. However, half a century later in 1988 when the construction of the Akashi Kaikyo Bridge began, the architects could take advantage of the experiences of their predecessor. While many consider the huge Japanese bridge a highly intelligent copy, the copy clearly surpassed its model. At the time it boasted the longest central span of any suspension bridge in the world at 1,991 meters. The height of the highest pylon was 282.8 meters compared to Golden Gate’s 227.4 meters. The first Asian country to enter the stage of gifted education was Taiwan in 1962. Other countries such as China (1978), Korea (1983), Singapore (1984), and Turkey (2000) followed later. In our contribution, we want to speculate whether Gorbachev’s admonition applies to gifted education in Asia or whether Asia was able to build a much more “advanced bridge” than its Western predecessors.

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Gifted Education in Modern Asia:
Analyses from a Systemic Perspective

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1. Introduction

When we were invited to comment on chapters describing gifted education in Asian countries, we were reminded of Mikhail Gorbachev’s famous dictum “Life punishes those who delay.” Asian countries entered gifted education and research on excellence relatively late compared to many Western nations (e.g., Stern, 1914). Nevertheless, there are examples that suggest the opposite may be true, that is, latecomers might also have some advantage. A famous example for the latter claim is the case of the Golden Gate Bridge and the Akashi Kaikyō Bridge. Both are suspension bridges linking the U.S. city of San Francisco to Marin County and the Japanese city of Kobe on the mainland of Honshu to Iwaya on Awaji Island, respectively. When the construction of the Golden Gate Bridge began in 1933, the longest span of 1,280 meters seemed almost impossible to build. However, half a century later in 1988 when the construction of the Akashi Kaikyō Bridge began, the architects could take advantage of the experiences of their predecessor. While many consider the huge Japanese bridge a highly intelligent copy, the copy clearly surpassed its model. At the time it boasted the longest central span of any suspension bridge in the world at 1,991 meters. The height of the highest pylon was 282.8 meters compared to Golden Gate’s 227.4 meters.

The first Asian country to enter the stage of gifted education was Taiwan in 1962. Other countries such as China (1978), Korea (1983), Singapore (1984) and Turkey (2000) followed later. In our contribution, we want to speculate whether Gorbachev’s admonition applies to gifted education in Asia or whether Asia was able to build a much more ‘advanced bridge’ than its Western predecessors.

2. Three reasons why the later onset of gifted education in Asia could be advantageous

A later onset might be advantageous under three circumstances. It seems expedient to commence later when:

- being first offers no Darwinian advantage;
- progress has been made (theoretical, technological, etc.) leading to the first-comers struggling to update their initial solutions; and,
- the field is entered with more potent aims and objectives.

2.1 Darwinian advantage

A Darwinian advantage means that whoever comes first blocks the rise of later competitors. However, just the opposite seems to be true for education in general and gifted education in particular. When in September 2000 the United Nations formally accepted the Millennium Goals, it was agreed that a global partnership for development should be formed. Thus, in principle, every country would have access to advanced educational technology, modern didactics, scientific papers, conference proceedings, and so on. This is also true for gifted education. Darwinian advantages for the early adopting Western countries that might hinder Asian countries from implementing modern gifted education are, hence, non-existent. To the contrary, it seems that Asian countries may have benefited from observations of Western approaches in the field. Further, some stagnation in the Western approaches may have occurred.
2.2 Western countries struggle with reforming their gifted education approaches

An initial glance might lead one to speculate that gifted education has made little progress in its one hundred year history. If we analyse evaluation studies of the provisions in gifted education reported in recent issues of our leading journals on gifted education (e.g., High Ability Studies, Gifted Child Quarterly, Talent Development & Excellence, Journal for the Education of the Gifted) and handbooks (e.g., Shavinina, 2009), it is remarkable how little has changed over the past hundred years. More than 90% of gifted samples in such studies are still identified by their IQ, achievements, or nominations, for example. Further, all the main methods utilized in gifted education today, such as acceleration, enrichment, pull-out programs and ability grouping, have been clearly discussed in 100 year old textbooks and have remained largely unchanged since then (e.g., Stern, 1916).

That final observation might surprise readers given meta-analyses that demonstrate only small to moderate effect sizes for these methods (e.g., Lipsey & Wilson, 1993). Indeed, there is a level of agreement among many Western researchers that three long-standing goals of the field are still way beyond our research. First, it is still not possible to reliably identify those talented individuals who will go on to be the high achievers in their domain\(^1\). Thus, we have to assume that we are committing substantial type 2 errors with our established identification procedures. Secondly, the magnitude of the type 1 error, that is, how many individuals are erroneously identified as gifted, is essentially unknown. Indeed, nobody can make a valid judgment whether those who were identified as gifted, but failed to attain excellence, were really gifted or just misdiagnosed. Finally, a third objective in gifted education has been to help gifted students attain their potential. However, our gifted education approaches are not yet effective enough to assure this objective. In most domains, the best individuals are several standard deviations above the mean, whereas the effect sizes of gifted education measures are generally below half a standard deviation.

A further problem related to Western gifted education has recently emerged and gained some prominence. This problem can be termed the iatrogenic effect, which refers to the unwished consequences that may arise from gifted education. One well-known issue, for example, is the labelling problem, namely whether the label may have negative impacts on gifted individuals (e.g., Coleman & Cross, 1988). Further, Heller (2004) proposed that the feedback from being labelled gifted might be a risk factor for healthy development. Another iatrogenic effect might be the outcome of controlling socialization by parents (Garna & Jolly, 2015; Vialle, 2013).

However, these somewhat bleak remarks should not cloud the fact that there has also been some progress in Western gifted education. Thus, it seems reasonable to suggest that although some ‘dead ends’ have been identified, some promising pathways are on the horizon for gifted education. Nevertheless, it also needs to be pointed out that we are talking predominantly of the theoretical progress that has been made in Western countries, which still needs to be widely implemented in practical educational provisions. It would seem that Western countries are still struggling with updating their gifted education

\(^1\) Indeed, there have even been spectacular failures when, for example, later Noble Laureates were excluded from gifted samples.
practices based on scientifically-sound research evidence. If we do not count scholarships, which are a financial and not an educational support anyway, then more than 90% of the financial resources for gifted education in Western countries are still invested in pull-out programs, enrichment, acceleration and ability grouping (Ziegler & Phillipson, 2012). More potent methods of gifted education, such as mentoring (Grassinger, Porath, & Ziegler, 2010) or more modern learning resources, such as e-learning, are still rarely used. In such an educational landscape, there is the opportunity for Asian countries to outperform Western countries, which are still struggling with updating their gifted education provisions.

2.3 Objectives

In his 1989 book, “Planning and implementing programs for the gifted”, James Borland made an interesting distinction between two approaches to gifted education: a national-resource approach and a special-education approach. According to Borland, the national-resource approach is future-oriented and considers talents to be a limited resource that has to be identified and addressed with appropriate measures of gifted education. The ultimate goal is the common good, which means as many gifted students as possible should become creative, productive, eminent adults. By contrast, the special-education approach is present-oriented. Instead of producing eminence, it focuses on the learning needs of high-ability students. Borland takes a clear stance in favour of the special-education approach and against the national-resource approach of which he writes: “I just hope that their vision for the field does not become reality” (Borland, 2012, p.1).

Although one might welcome clear-cut positions, it is nevertheless puzzling why Borland reduces such a complex issue to just two antipodes. In our view this might be the consequence of an even deeper dichotomy. Like many others in gifted education, Borland grounds his thinking on the contrasting juxtaposition of environment and individual. In line with a strong individualistic perspective favoured in many Western societies, Borland favours the welfare of the gifted individual over the welfare of the society. The juxtaposition of individual and environment underlies many important debates in gifted education. Examples are the nature-nurture debate or when Barab and Plucker (2002) ask, “Smart people or smart contexts?” By contrast, the belief in the important role of the social and cultural environment and its harmonic interplay with the individual is a distinctive feature of many Asian societies (Phillipson, Stoeger, & Ziegler, 2013; Vialle, 2013). Indeed, individuals are considered not distinct from, but a vital part of their environment (Triandis, 1989, 1995). Thus, one might wonder how Asian countries would adapt the Western individualistic concept of giftedness to their cultures. Indeed, one would hope that they would be able to overcome the contrasting juxtaposition of environment and individual, and combine the environmental-societal and individual within a systemic framework.

2.4 Summary

However, without explicitly mentioning it, Borland believes in a variant of Mephisto’s Principle which assumes that pursuing the best for the individual might ultimately also benefit the general public (see Maxeiner & Miersch, 2001).
In summing up, we have seen some evidence that there is a possibility that, although Asian countries entered gifted education later than Western countries, they might be more advanced today. While Western countries might not exert a Darwinian advantage, they have issues in updating their gifted education in line with the latest scientific developments. Furthermore, their ‘either-or’ approach—mainly focusing on the gifted individual while neglecting to co-adapt its environment—might also be an obstacle that is difficult to overcome.

3. Theoretical background of our analyses

With a few notable exceptions (e.g. Dai & Chen, 2013; Csikszentmihalyi, 1996), recent conceptions of giftedness are still within the mechanistic tradition of focusing on simple cause-effect relationships. By contrast, systemic approaches assume that the processes relevant for gifted education are much more complex than previously assumed (Ziegler, 2005; Ziegler & Phillipson, 2012; Ziegler, Vialle, & Wimmer, 2013). We argue that gifted education has to come to terms with very complex networks of actions and interactions encompassing not only the gifted individual, but also its material, informational and social environment (Ziegler, Stoeger, Ballestrini, in press; Ziegler, Vialle, & Wimmer, 2013). We call such systems, which comprise the individual and the environment in which it acts, actiotopes.

Gifted education should target whole actiotopes rather than single individuals. What is needed is the thorough planning of a learning pathway with the co-evolution of all the components of an individual’s actiotope. However, educational measures which are deduced from traditional conceptions of giftedness are usually based on the hope that combining a few discrete interventions, such as skipping a class, attending a summer school or a few enrichment experiences, could have a lasting positive influence on an individual’s development. Evidence suggests that this is a well-intentioned myth.

Ziegler (2005) named five dynamic functions that must be met in order to successfully develop a complex system, such as an actiotope, to a level of excellence. The same dynamic functions can be applied to the development of the gifted education system. However, for reasons of limited space we will condense the five functions to three criteria, which we will apply to the evaluation of gifted education in Asia. These comprise the culture of evaluation, range of application, and production of action variants. As systemic approaches are resource-oriented rather than trait-oriented, we will make use of a fourth criterion for evaluating recent gifted education in Asia: How comprehensive and how effective are exogenous (environmental) and endogenous (individual) resources?

3.1 Culture of Evaluation

According to Ziegler (2005), the development of a complex system needs (1a) constant feedback about the appropriateness of its current actions. It must also (2a) be anticipative in order to meet future challenges for its further adaptation. If the system is (3a) in high competition with other systems, the implementation of a complex feedback system that gives feedback to the appropriateness of each major adaptation is a necessity. Thus, when analysing gifted education in Asia we will consider questions like: (1b) Is there systematic...
information available about the current effect sizes of educational provisions such as
summer programs? (2b) Is the gifted education system constantly surveyed in order to find
weaknesses and strengths to determine the developmental course for further
enhancements? (3b) Is a continuous feedback system along the learning pathway of the
gifted individual implemented so that gifted educators are always well informed about the
possible next learning steps?

3.2 Permanent production of action variants

Progress presumes the constant improvement of available action repertoires and the
development of new action capabilities and their proper execution. Thus, for example, it
would be interesting to see if Asian countries developed new forms of acceleration or if they
utilized the existing ones.

3.3 Range of Application

Successful systems are characterized by constantly exploring the exact range of application
of their educational provisions and actions. This means generalizing as well as fine-tuning.
For example, the curriculum of a summer school might also be used in regular classroom
instruction. But it might also be the case that a program that was originally designed for both
sexes might be found to be suitable for girls only. In a similar vein, twice exceptional gifted
students might need different educational approaches than those appropriate for other
gifted students. Thus, the constant search for the optimal range of applicability in terms of
individuals and settings and objectives can be considered an important feature of advanced
gifted education systems.

3.4 Resource orientation: Educational and Learning Capital

Traditional Western conceptions of giftedness target individual talents. However, there is an
alternative approach, which is still uncommon in gifted education. Instead of asking if a
certain individual is gifted and could – in principle – attain excellence, we could also ask the
complementary question of whether excellence is likely to appear within a certain system.
An example of successful systems in this regard is the Dutch Golden Age of the 17th
century in which society produced geniuses in sciences and philosophy such as Descartes, Spinoza,
and Leeuwenhoek, and in painting such as Rembrandt, Vermeer, and van der Velde.
Nowadays, for example, one may ask what the likelihood is that there will be a female
Singaporean Noble Laureate in biology before 2030 or what the likelihood is that a student
team from Saudi Arabia will rank among the three best nations at the International
Olympiad in Informatics. However, finding answers to such questions demands a very
different approach that is not focused on individuals alone, but also on resources located in
actiotopes. Such an approach was recently proposed by Ziegler and Baker (2013) who
suggested the importance of ten resources, which they termed educational and learning
capital. We examine each of these forms of capital to determine how well they are
considered in the gifted education systems of the described Asian countries.
Analyses of gifted education in Asia

Asia comprises 51 countries. This book contains descriptions of gifted education in nine countries, which represents only one-sixth of Asian countries. Thus our comments are limited to this proportion of countries. We note that the nine countries were outstanding in two respects. Each country has a gifted education system considered worthy of description along with renowned scholars in gifted education who were willing to describe his/her country’s practices in this book. The latter qualification is important, because there are indeed some Asian countries with advanced gifted education such as the United Arab Emirates (e.g., Alghawi, 2015), which are not represented in this book. But even when taking those countries into consideration, it is obvious that only a minority of Asian countries have seriously entered the field of gifted education. So it is important to note that in the following discussion of gifted education in Asia, we are referring only to those selected pioneering countries.

4.1 Culture of Evaluation in Asia’s gifted education

Countries like Taiwan, Hong Kong, South Korea and China have more than double or triple as many students achieving the highest PISA Levels 5 and 6 than do Western countries. But is this due to extraordinarily effective gifted education? Or is it instead the effectiveness of the school systems as a whole, which is able to shift many students from the centre to the right end of the distribution and many students from the left end to the centre of the distribution? The truth is that we do not know the answer and the various chapter authors did not have the necessary information available to answer this question either. For example, Japan has a similar PISA output as these countries, but no gifted education per se. This means that there is a possibility that gifted education in Taiwan, Hong Kong, South Korea and China might impair the development of gifted students (but please, keep in mind that we are only talking about a possibility). Without proper evaluation, we simply do not know and most of the authors expressed their concerns at not having more research available to address even such basic questions.

An underdeveloped culture of evaluation exhibits itself on any level of gifted education in Asian countries. We want to give just two examples. (1) In none of the chapters are systematic efforts reported to determine the effect sizes of the gifted education provisions. After carefully reading each of the chapters, we could not find any information for any country to determine which parts of their gifted education are working, which have no effect, and which might even have a negative effect. For example, in Taiwan, five groups of acceleration practices are used. But average effect sizes are unknown let alone information for which gifted students (younger or older, girls or boys, underachiever or twice exceptional) this might be a conducive practice. (2) Interestingly, many research studies in Asian countries target identification of gifted students. For example, Tommis reports for Hong Kong that almost two thirds of the scientific papers are concerned with matters of identification. However, it would seem that the government has not funded studies to evaluate the effectiveness of the identification system as a whole. Due to the so-called paradoxical attenuation effect, most students identified as gifted are expected not to be gifted (Ziegler & Ziegler, 2009); they are simply misdiagnosed students from the middle IQ
range. Thus, it is likely that the majority of students identified as gifted in Asian countries (for example 1% in Singapore, 0.71% in Taiwan, 1.87% in South Korea) are not gifted according to their respective identification criteria. However, these identification problems may also have a positive aspect insofar as they can be used to infer the quality of gifted education. They give researchers the opportunity to compare the developmental trajectories of those gifted students who were correctly diagnosed as gifted and received the gifted education programs with those who were erroneously not identified as gifted and consequently did not receive the gifted education programs.

As mentioned previously, almost all of the chapter authors recommend additional research and/or comprehensive evaluation. However, given the situation wherein evaluation studies do not have the highest scientific reputation and research capacities are quite limited, one might wonder how a culture of evaluation can be created. In particular, there is a need for feedback that systematically informs gifted education practice. Indeed, there seem to be structures in some of the Asian countries that could be developed to this end. For example, a central Gifted Education Program, such as that in Singapore, might be a good step towards the implementation of a feedback system that is supplemented with local evaluation agencies so that feedback would be on all levels of gifted education. Indeed, in South Korea there is already some consideration of how a system for evaluating program effectiveness might be implemented (Lee et al., 2013). However, until such systems are implemented, the sad truth is that Asian countries probably know more about the current state of their transport system or their soccer teams than they do about their talents and their education.

4.2 Permanent production of action variants in Asia’s gifted education

When we analysed the country reports with regard to action variants, we had a smile in one eye and a tear in the other. First, we will report the tears. It is clear that gifted education in Asia is heavily influenced by Western gifted education. Given the low effect sizes of Western gifted education and the other problems previously outlined, it seems that Asian countries are entering the same dead-end streets as Western gifted education a century ago. However, there is also a growing and discernible unease. For example, in China where the focus is still on enrichment and acceleration, Dai, Steenbergen-Hu and Yang (this volume) quote from a recent publication of the China Ministry of Education (2010) that educators should “foster diverse models of nurturing, meet the developmental needs of students of different potentials, and explore many ways that creative talent can be identified and nurtured.” From this example and many more throughout the chapters, we see a growing dissatisfaction with relying solely on traditional Western concepts. Some authors were very explicit that Asian countries must be much more determined to find their own ways in gifted education that better reflect their own culture. The smile in our eye came from the first glimpses of an emerging and increasing interest to explore new avenues in gifted education. For example, in the last 10 years it has become an important objective in Singapore to

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3 Two comments are in order: (1) The paradoxical attenuation effect applies not only to IQ tests, but rather to any measuring instrument that is used for identification of gifted students.

4 With regard to the applied identification criteria.
diversify provisions for gifted students. Indeed, we hope that our colleagues there will receive the necessary resources to develop their own ways of fostering the development of gifted students. In the meantime, we anticipate the first major new method of gifted education, to supplement the usual range of provisions such as acceleration and enrichment, which has originated in an Asian country.

4.3 Range of Application in Asia’s gifted education

Very similar to the state of the production of action variants is the state of the systematic exploration of the applicability of gifted education provisions. There are some promising beginnings when in Turkey, for example, refinements are discussed such as eminence in different domains, multiple talents and multiple intelligences or different thresholds of giftedness. There are also serious attempts in Singapore, for example, to broaden the concepts of giftedness. The interest in excellence within non-academic domains is growing, along with interest in different recipients of gifted education such as twice exceptional students. However, these beginnings should not obscure the reality that very basic insights are not available. For example, we would also like to know if, in a particular country, acceleration works equally well with younger and older girls, if mentoring in STEM and in the arts is equally successful, or for which students pull-out programs are less suited. However, the answers are not available and so it comes as no surprise that the authors almost unanimously conclude that their national educational system is not yet capable of sufficient differentiation (e.g. Neihart & Tan, this volume).

4.4 Resource orientation in Asia’s gifted education

In the Actiotope Model of Giftedness, two kinds of resources are distinguished. Five forms of exogenous resources are located in the environmental component of an actiotope and are referred to as educational capital. Five forms of endogenous resources are located in the person and are referred to as learning capital.

4.4.1 Exogenous resources: Educational capital

Economic Educational Capital

None of the chapters in this volume provide exact numbers on how much finance is invested in gifted education. Even when numbers were mentioned, as in the chapter on Singapore, the exact amount of money spent for gifted education is not mentioned and is probably not available. However, even in those countries in which a relatively high amount of money is spent on gifted education, the scholars reporting nevertheless describe major weaknesses in the devolution of finances. For example, in countries like Taiwan or Singapore, gifted education is restricted to a small percentage of students. For other gifted students, no financial resources are available and their schools have to meet their learning needs within regular classroom instruction. Thus, it seems fair to surmise that current funds are not sufficient to finance the improvements required in their respective national gifted education and which the chapter authors suggest. However, some countries like Saudi Arabia or South Korea might be more willing to address the financial gaps.
**Cultural Educational Capital**

Without exception, the authors have indicated that education is valued in their country. However, that does not mean that gifted education shares this status. For example, Dai, Steenbergen-Hu and Yang (this volume) characterize the status of gifted education in China “as having no status”. Similarly, the status of gifted education in Japan is that it is a touchy subject, even a taboo (Matsumara, this volume).

The reasons why gifted education is valued differ from country to country. There seem to be countries with more pragmatic reasons, such as India or Turkey, which see gifted education as a means to a better future for their nation. Even China seems to realize the importance of this pragmatic factor when rather than the gifted, against whom some reservations are held, the ‘supernormal’ children receive special provisions. But there are also countries in which pragmatic reasons and cultural belief systems seem to reinforce each other, such as in most Confucian countries. Indeed, Asian countries with roots in Confucianism seem to be at an advantage (Cho & Lin, 2011). Neihart and Tan point to “[…] a moral obligation for parents and teachers to develop the capability of every child to the utmost” (this volume, pp. XXX). Wu and Kuo (this volume) note that the labels ‘gifted’ and ‘talented’ are like a “golden ticket for academic and career success” (p. xxx) in Taiwan.

Interestingly, some authors describe the tension between the Western concept of giftedness and the concept of giftedness in their own culture. For example, Sak (this volume) critiques Western definitions of giftedness and concludes that they do not reflect essential elements of the Turkish culture. This may mean that in the near future some countries will develop conceptions of talents and gifts that are more in sync with their cultures.

**Social Educational Capital**

In our introductory section, we expressed the hope that a distinctive strength of gifted education in Asian countries might be their provision of social educational capital. Given the cultural background of collectivist societies (Triandis, 1989, 1995), one would expect a different role of learning communities of peers, the parish, parents, siblings and other relatives, or retired seniors, for example, than in Western countries. However, Asian countries today focus heavily on teachers and their education. The development of other forms of social educational capital plays a secondary role. We regret this and hope that Asia will capitalize more on its own cultural strengths and values, thus introducing social connectedness and various forms of social support in gifted learning.

In spite of the overall disappointing situation regarding social educational capital, there are some systematic attempts to make use of the potential multitude of social educational capital resources in a few countries. For example, the roles of a Gifted Education Manager and a Gifted Education Coordinator became obligatory in Hong Kong Schools from 2012 and attention has also been given to the professional development of educational psychologists, social workers and education practitioners (Tommis, this volume). There is also a parent support division at the Hong Kong Academy for Gifted Education (HKAGE) that seems to work closely together with the Hong Kong Parent Association for Gifted Children. Besides this, social educational capital plays a more important role in the private sector. For
example, the phenomenon of ‘Tiger Mothers’ in Asia has stirred worldwide attention (Vialle, 2013). Other examples are juku or cram schools (Matsumura, this volume) or private tutors (Wu & Kuo, this volume).

**Infrastructural Educational Capital**

Infrastructure building is an objective in all the countries. Examples are the Science and Arts centres in Turkey, social support infrastructure in China, the Sports Institute and the Academy of Performing Arts in Hong Kong, schools for the gifted in many countries, as well as summer camps for the gifted. This also extends, in some cases, to the research field. For example, in Korea there is the National Research Center on Gifted and Talented Education (NRCGTE), the Global Institute for Talented Education (GIFTED) at the Korea Advanced Institute for Science and Technology (KAIST), the Research Center for the Scientifically Gifted, and the Korean National Research Institute for the Gifted in Arts (KRIGA) (see Cho & Lee, this volume). However, a closer look also reveals notable deficiencies. The gifted education infrastructure is not well integrated in any of the selected countries. An example is the weakly connected institutions of preschool gifted education and primary school education. Another deficiency is that many forms of infrastructural educational capital are clearly underdeveloped. For example, the digital revolution is not evident in any country as a functioning e-learning or Web 2.0 based infrastructure.

**Didactic Educational Capital**

In all countries, the equipment of teachers with didactic educational capital is reported as a major concern. Popular Western didactic approaches to curriculum development (VanTassel-Baska et al., 2008) or to differentiation (Maker, 2010) dominate. The need for the development of didactic resources that match the cultural background of the country is probably highest in Saudi Arabia where the works of Aljughaiman (e.g. in press, Aljughaiman & Ayoob, 2013), for example, have had a fruitful influence on developing advanced programs such as the OASIS enrichment model. Nevertheless, most of the authors report problems in relation to didactic educational capital. As one example, we cite Cho and Lee (this volume) who regret that the curriculum for gifted education classes and gifted education centers in Korea “lacks continuity, flexibility, and differential instruction” (p. xxx).

The transfer of didactic educational capital to other social educational resources other than teachers has scarcely been tapped yet. For example, parents are rarely addressed as a possible didactic educational resource that has to be developed and the same applies, for example, to almost all forms of learning that make use of digital devices. Thus, in order to access advanced didactic educational resources some parents make use of special opportunities in their county in the private sector. These encompass private tutoring in juku or cram schools (Matsumura, this volume) or private tutors (Wu & Kuo, this volume).

In summary, it seems the development of didactic educational capital in Asia’s gifted education is still at its beginning stages and it will be interesting to see what will happen when Asian countries are no longer predominantly consumers of didactic educational capital, but also producers.
4.4.2 Endogeneous resources: Learning capital

Organismic educational capital

Currently organismic learning capital is a hot topic in many research areas. Studies span from very basic issues (e.g. how physical fitness might influence learning capacity) to applied issues (e.g., what time should school start to obtain an optimal fit with the biorhythm of students). It is notable that issues such as sleep, regeneration, and optimal nutrition seem to presently play no role at all in gifted education in Asia.

Actional Learning Capital

The main focus of Asian gifted education is the development of effective action repertoires, that is, the accrual of actional learning capital. We previously acknowledged the extraordinary achievements of some Asian countries in PISA, for example. Asian countries also seem to place much more weight on developing excellence than do Western countries. However, on the negative side we want to mention two aspects. Firstly, some forms of actional learning capitals are clearly favoured over others. For example, there is a heavy emphasis in several countries on the STEM field. Secondly, some problems arise with high stakes testing. In particular, action repertoires are too heavily geared towards schoolhouse giftedness (Renzulli, Smith, & Reis, 1982) rather than creative/productive giftedness in domains.

Telic Learning capital (availability of functional goals)

Some countries realize the importance of supplementing gifted students with telic learning capital. For example, Roy, Kurup and Maitra (this volume) quote Krishnamurti’s guiding principle: “Right education should help the student, not only to develop his capacities, but to understand his own highest interest” (p. xxx). Very similar objectives are also expressed for Saudi Arabian, Turkish or South Korean gifted students. However, these objectives are more implicitly expressed in gifted education and we do not see them implemented in a deliberate professional manner.

In Confucian cultures, we find gifted students endowed with rich telic learning capital. “Effortful learning does not have to end in talented performance, but can be brought to a higher level of accomplishment through self-cultivation that transforms and changes one’s beliefs, attitudes, and values to a deep and ultimate concern for the well-being of others” (Chan, 2009, p. 121, cited by Tommis, this volume). However, Confucian tradition has also its down-side as Cho and Lin (2011) point out, because it fosters extrinsic motivation.

Episodic learning capital

One of the biggest challenges of current Asian gifted education, from our analysis, is the accumulation of episodic learning capital. Many eminent scholars have pointed out that learning methods like rote learning are detrimental for true learning progress and eventual excellence. For example, Noble laureate Kahneman (2011) wrote: “The test of learning psychology is whether your understanding of situations you encounter has changed, not whether you have learned a new fact” (p. 174). In a similar vein, Herbert Simon, another
Noble laureate with a strong background in cognitive and learning psychology pointed out that “all evidence, from the laboratory and from extensive case studies of professionals, indicates that real competence only comes with extensive practice [...]. In denying the critical role of practice one is denying children the very thing they need to achieve real competence” (Anderson, Reder, & Simon, 2000). In light of these warnings, the concerns of several chapter authors about the heavy use of rote learning and high-stake test learning are to be taken seriously. There seems to be a danger that a substantial number of Asian gifted students may become test experts, but not go on to become eminent individuals in their lives.

**Attentional learning capital**

Research shows that the daily learning time with the highest level of concentration is limited to a couple of hours (Ericsson, 2009). This is one of the reasons why we usually find that eminent individuals report that they structure their daily routines and the rhythm of their learning in a deliberate and functional manner (Debatin, Hopp, Vialle, & Ziegler, in press). However, despite almost 150 years of research in learning curves, timing and sequencing of learning units, repetition scheduling, rest periods and intermissions, we did not find in the nine country reports any information that attention management among gifted students is an objective of gifted education. Thus, compared to the meticulous planning of attention management in elite sports, for example, gifted education in Asia is behind in this area (we note that this is true of gifted education in other parts of the world as well).

**5. Conclusion**

In the introduction we posed the question whether it was conducive or detrimental for gifted education in Asia to have entered the scene somewhat late. We indicated that our answer would come from a systemic perspective. Indeed, our conclusion will be ambivalent. However, in concluding our chapter we want to first take the opportunity to congratulate our colleagues who reported on gifted education in their countries. They all delivered highly interesting and informative reports about the state of the art of gifted education in their countries. We commend the progress that has been made in their respective countries in the short period of time that gifted education has existed there. However, we also share their concerns about the shortcomings of the provisions in gifted education; these echo many of our own concerns formulated on the basis of our systemic approach. Indeed, we think the main problems can be summarized in four points:

1) Gifted education in Asia needs the development of a culture of evaluation. To be informed on what is working and what is not working in gifted education is an indispensable precondition for progress. Evaluation centres and research centres should play an important role in this.

5 However, some might claim that the (bold) measures of compacting and acceleration might be a step towards this direction as it allows students to better find their own learning pace. We would argue that these provisions leave the learning pace just to the intuition of the gifted student, which might not be considered a professional way to foster attentional learning capital.
2) Gifted education in Asia is Western oriented. This might have been a good starting point, but the mechanistic Western approach that focuses predominantly on the individual and neglects the context should be superseded. Asia has unique cultural strengths and should capitalize on them.

3) Gifted education provisions have to be much better adapted to the recipients, settings, and specific learning goals. Currently Asian countries only have fragmented knowledge about this.

4) Instead of the heavy reliance on finding gifted students and its concomitant mentality, we would argue for the adoption of a constructivist mentality based on a resource-oriented approach. The guiding principle should be first to build the exogenous resources for gifted education and to aim at the improvement of endogenous resources.

Of course, these four points are not independent of each other. For example, a resource-oriented approach would try to identify the hotspots of gifted education where excellence arises at levels well above chance. Unfortunately, it seems that only Saudi Arabia is making systematic use of best practice models. In other countries, it is difficult to identify hotspots, because they may blur their own successes. For example, Middle School Nr. 8 in Beijing seems to be a fair candidate for such a hotspot as many medal winners at the International Academic Olympiads come from this school. However, because these students are so highly selected we do not know if the successes are due to the radical acceleration program at this school or due to their selection. What would be needed is an evaluation based on a method with so-called statistical twins.

In finally answering our question of whether it was helpful or not that gifted education in Asia entered the stage relatively late, there is no definitive answer. There are promising aspects of gifted education in Asia, but also aspects that give rise for concern. However, one conclusion seems safe to us, namely that Asian countries could do much better if they examine their own cultural strengths and give their gifted education its own identity rather than copying the traditional Western models.

### 6. References


