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About the TJGE
Turkish Journal of Giftedness and Education covers all aspects of giftedness, talent, and creativity and all types of high ability. It provides a scientific platform for researchers, practitioners and administrators to discuss and disseminate scientific research, theories, and practices and ideas. The TJGE is a refereed journal which publishes original research articles, literature and book reviews in Turkish and English. Articles submitted to the TJGE undergo peer review process. The TJGE is an open-access online journal and published twice a year.
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Editorial

Special Issue: Gifted Education in the Republic of Korea

Gifted education in the Republic of Korea, which began in the 1980s, had not a progress for two decades, but was spurred again by the promulgation of the Gifted and Talented Education Promotion Act in 2000. It would appear that Koreans have been ambivalent about gifted and talented education. On the one hand, we expect our children to be excellent, but on the other hand, we are concerned about provoking excessive competition among children and parents. To pursue excellence, the gifted education system was introduced with a legal foundation. Highly creative students with more focus on STEM in the fourth grade and up are identified through various assessments of their creativity. Gifted education for elementary and middle school students is implemented during after-school hours or on weekends as extra-curricular activities, whereas, for high school students, it is implemented during the regular school hours in specialized high schools.

While the Western view on gifted education is rooted more in concerns over equity, the Korean view on gifted education is more concerned with the healthy development of whole children and nurturing creativity. The current gifted education system was designed with efforts to keep a balance between excellence in creativity and emotional and social well-being. In this special issue, the current status of Korean gifted education is presented, reflecting on the history, purpose, theoretical foundation, infrastructure, and teachers for gifted education.

This theme issue presents current picture of four main aspects of gifted education in Korea and examines its strengths and weaknesses, and some ideas on how they can be improved. It presents cultural and theoretical background behind the identification of gifted students and gifted education; the legal enforcements on central and local governments and schools for providing services for gifted students; identification of gifted students, programs and institutions involved in the professional development for gifted education teachers; and data collection on gifted education and its use for policy makings.

The first article presents an overall picture of Korean gifted education. It presents history and cultural background of Korean gifted education, purposes of gifted education, theories behind the practices of Korean gifted education, and current state of art in terms of the domains, school levels, number of institutions, students, and teachers involved in gifted education.

The second article reviews Gifted and Talented Education Promotion Act (GTEPA) (2000) and the Gifted and Talented Education Promotion Enforcement Decree (GTEPED) (2002) which became a firm legal foundation of gifted education. The Act and Enforcement Decree define responsibilities of central and local government for providing gifted educational services to the identified students. They also direct identification of students, types of educational institutions, research and development, and professional development.

The third article examined Korean practices of gifted identification, which is featured as domain specific, highly selective and limited to the top 1.87% of all students, aligned with gifted education curriculum, with focus on STEM, multi-step screening with multiple measures, ongoing assessment, and some efforts for identification of under-represented gifted students.

The fourth article reviews the kinds of teacher education programs for the gifted in Korea and its development during the last 10 years and the improvements needed for the future. Central government and local education authorities implemented 261 in-service training courses in
From 2003 to 2013, universities and various educational institutions have developed a variety of teacher training programs including basic, advanced, overseas, leadership, specialized, and on-demand. There is no formal undergraduate pre-service teacher education program, while most of the pre-service and in-service teacher education programs are offered at the graduate schools.

The fifth article explores the content and significance of the Gifted Education Database (GED), a Korean information service system for gifted education. The GED functions as: 1) an information management system and 2) a teacher recommendation system for identification. Overall, as a comprehensive collective information system in gifted education, the GED is intended to support policy making on providing appropriate educational experiences for the outstanding individuals, particularly those with disadvantaged socio-cultural background by providing reliable data at the national level. At the user level, it increases data accessibility and provides customized services for people concerned with gifted education.

Seokhee Cho
Special Issue Editor
St. John’s University, Jamaica, NY, USA
Korean Gifted Education: Domain-Specific Developmental Focus

Seokhee Cho¹ & Yewon Suh²

Abstract
The current Korean gifted education system is designed to help gifted children have a balance between excellence and emotional and social wellbeing. In this article, the current status of Korean gifted education is presented, reflecting on the history, purpose, theoretical foundation, infrastructure, and state of art of gifted education with statistics. This article concludes with the obstacles that gifted education faces and recommendations for expansion and diversification.

Key Words: gifted education, Korea, history, Confucian culture, intra-structure

Background of Korean Gifted Education
Since the foundation of the Republic of Korea and its government, gifted education in Korea has grown rapidly in a relatively short period of time. There are some differences in opinion regarding the beginning of gifted education, but it can be safely said that the current gifted education in the public education system for the first time began with establishment of Kyeonggi Science High School, an affiliated school of science center of Kyeonggi province in 1983 (Cho, 2004; Lee, 2003). This science high school was established with the goal of nurturing the creativity of future scientists and engineers. This was a turning point after a long effort to control the negative side effects of competitive entrance examinations into middle and high schools. Educators and policy makers realized that the suppression of gifted education resulted in the decrease of human resources who can lead science and industrial development in Korea. Since 1987, when the Presidential Commission for Educational Reform included a recommendation for the promotion of gifted education, acceleration in regular schools through early entrance to elementary school and grade skipping got legal endorsement and Research Center for Gifted Education (Kim, Kim, & Cho, 1987) was designated and supported by government policy. Rationale for gifted education was established in Article 19 of the Fundamentals of Education Act (1997), thereby contributing to the establishment of legal base of gifted education (Kwon & Kim, 2009).

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The Gifted and Talented Education Promotion Act (GTEPA) was promulgated in 2000. The act specified responsibilities of schools, school districts, and the central government in providing gifted education programs for gifted students and building capacities of GATE teachers through basic, enriched, and advanced professional development. The law patronized the establishment of national high schools for the scientifically talented students and financial support for research and development on gifted education, intensive teacher training, and expansion of gifted education services provided by school districts. Since 2002, the government has designated and supported three national level research centers for gifted education. National Research Center on Gifted and Talented Education (NRCGTE) at the Korean Educational Development Institute, the Global Institute for Talented Education (GIFTED) at the Korea Advanced Institute for Science and Technology (KAIST), and Korean National Research Institute for the Gifted in Arts (KRIGA) at the Korea National University of Arts were established for the development of gifted education in general, in science and technology, and in arts respectively. Later, national gifted education promotion master plans were authorized every five years: 1st plan for 2003 - 2007, 2nd for 2008 - 2012, and the 3rd for 2013 – 2017 (Ministry of Education and Human Resources, 2002, 2007, 2012). As of 2015, education for the gifted and talented has received more public attention and has become an important part of education in Korea. At the same time, the Korean government is careful not to increase the negative side effects of gifted education on the socio-emotional well-being of gifted and all other children by confining gifted education services to outside of regular school hours for elementary and middle school students.

**Purposes of Gifted Education**

With regard to the purposes of gifted education in Korea, Article 1 of the GTEPA clearly stipulates the purposes of this act as “to early identify persons endowed with talents and provide them with education tailored to their competence and talents as provided for in Articles 12 and 19 of the Fundamentals of Education Act in order to encourage them to develop innate potential, seek self-realization and contribute to development of the nation and of society”. The three purposes of the act are: educational innovation, actualization of high potential, and human resources development for the nation and society.

**Educational innovation.** Korean education has long focused on students’ acquiring more knowledge and skills to get the best results at the high-stakes tests. Korean parents’ excessive education fever and severe competitions among students have been barriers against developing gifted children’s creativity and leadership. Gifted students were neither encouraged to take risks of failure nor to collaborate in team works to solve real world problems. On the contrary, the goal of the GATE program is to nurture creativity and leadership of gifted students in a global society. Therefore, both identification and curricular programming focus on creative problem solving and leadership. GATE may bring a tide of innovation and reform to the total school system as Renzulli (2004) illustrated how the quality of
education for all students can be enhanced by applying gifted education know-how (e.g., the schoolwide enrichment model).

**Actualization of high potential of gifted students.** The fundamental concept of special education is the delivery of education programs through an individualized education plan (IEP) to meet the needs of each student. Likewise, all GATE program alternatives such as ability grouping, differentiated curricula, and acceleration provide gifted and talented students with challenging enrichment opportunities for potential development. In particular, the gifted education system protects the right of the profoundly gifted prodigies to learn. The right to learn was advocated by parents of profoundly gifted children (e.g., prodigies in math) who do not benefit from regular gifted education services and was endorsed by modifying the GTEPA in 2005 (Korean Ministry of Government Legislation, Legislative Information Division, 2014). Upon formal recognition of profound giftedness, a child is provided with exceptional education services based on the child’s needs such as dual enrollment in elementary or middle school and a local university, mentoring and counseling services by university faculty and staff members.

**Human resources development.** Gifted education in Korea has a national goal of producing creative scientists and artists who can contribute to rendering a society better or more beautiful. During the Korean economic crisis in 1998, consensus was reached on the need of a more serious support for gifted education, resulting in the promulgation of the GTEPA in 2000. Before the GTEPA, 16 science high schools existed under the supervision of the Ministry of Education based on the Elementary and Secondary Education Act. With the promulgation of the GTEPA in 2000, the Ministry of Science and Technology and Ministry of Culture and Tourism collaborated with the Ministry of Education to establish gifted educational institutions, to develop curriculum, instructional materials, and instruments; and to support professional development with the goal of producing creative scientists and artists.

**Theoretical and Cultural Orientation**

**Giftedness as a developmental process.** Cho and Lee (2015) states that there is no one specific theory which is formally endorsed for Korean gifted education. However, in practice, the concept of giftedness as a developmental process (Cross, 2011; Dai & Chen, 2013; Horowitz, Subotnik, & Matthews, 2009; Sosniak, 1985; Subotnik, Olszewski-Kubilius, & Worrall, 2011) is the dominant theory along with the influence of Confucian value in the practice of Korean gifted education. Excellent achievement originates from high potential (Simonton, 2010). However, its full actualization requires motivation, learning through experiences, and practice in specific domains (Bloom & Sosniak, 1981; Kalinowski, 1985; Lubinski, 2010; Park, Lubinski, & Benbow, 2008; Winner, 1996). Through a developmental process, the potential in children and adolescents is developed into eminence in adults (Feldhusen, 2005; Subotnik & Rickoff, 2010), which contributes to making better and more beautiful societies (Subotnik,
Olszewski-Kubilius, & Worrell, 2011). The concept of giftedness as a developmental process is well aligned with the practice of gifted education in Korea.

Cho and Lee (2015) claimed Korean Confucian culture has also influenced on students’ belief that success is due more from effort than from inherent ability (Sorensen, 1994; Watkins & Biggs, 1996). Korean students tend to meet their parents’ high expectation for their academic achievement (Cho & Campbell, 2011; Kim, Kim, et al., 1994). Therefore, extrinsic motivation for learning is very high (Cho & Lin, 2011; Kim, 2005; Lee, 2005). Consequently, Korean educators are concerned about students’ intensive extrinsic motivation, which can harm the development of creativity to some extent (Amabile, 1983).

Korean GTEPA defines giftedness as “those who have outstanding talent and require special education to actualize their potential.” Meanwhile GTEPA does not state what talent and potential mean, Renzulli’s (1978) creative productivity of giftedness is the most preferred definition of giftedness and utilized in the practices of identification. Identification of students for gifted education is mainly conducted in each specific domain based on students’ creative problem solving performance, which requires dynamic interactions among motivation, knowledge, and skills in general and in specific domains; critical thinking; and divergent thinking (Cho, 2003; 2006; Lin & Cho, 2011). Various creative problem solving tests in specific domains such as mathematics, science, information technology, and language arts have been developed and validated for identification of gifted education students.

II. State of Art of Gifted Education in Korea

Gifted Education and Support System

Infrastructure and service delivery model of gifted education. The infrastructure of Korean gifted education is comprised of a support system and gifted educational institutions. The support system is comprised of Gifted Education Law, National and Provincial Committees for the Promotion of Gifted Education, and three National Research Centers. Educational institutions for the gifted consist of specialized high schools for the gifted in science, foreign languages, arts, and sports; gifted education centers; and special classes for the gifted in regular schools. Gifted Education Centers are supported either by 16 Metropolitan/Provincial School Boards or the Ministries of Science and Technology, Information and Technology, and Culture and Tourism. Special classes are formed with students from a regular school or from several schools in the vicinity. In practice, special high schools for the gifted provide accelerated and enriched programs during regular school hours, whereas gifted education programs at gifted education centers and special classes for the gifted are implemented as extracurricular activities outside of regular school hours.
Figure 1. Korean Gifted Education Infrastructure (Source: Korean Ministry of Education and Human Resources, et al. (2002), p. 9)

Major status of gifted education. The actual conditions of gifted education beneficiaries and institutions since 2003 when gifted education came to be expanded by each municipal and provincial office of education are as follows.

Table 1. Number of Gifted Education Students by Year (2003~2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of gifted education beneficiaries</td>
<td>19,974</td>
<td>25,213</td>
<td>31,100</td>
<td>39,011</td>
<td>46,006</td>
<td>58,346</td>
<td>73,865</td>
<td>92,198</td>
<td>111,818</td>
<td>118,377</td>
<td>121,421</td>
</tr>
<tr>
<td>Ratio of the beneficiaries to all students (%)</td>
<td>0.25</td>
<td>0.32</td>
<td>0.40</td>
<td>0.50</td>
<td>0.59</td>
<td>0.77</td>
<td>1.00</td>
<td>1.27</td>
<td>1.59</td>
<td>1.76</td>
<td>1.87</td>
</tr>
</tbody>
</table>

Source: GED (2013)

Table 2. Number of Gifted Education Centers (2003~2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of gifted education institutions (GED, 2013)</td>
<td>400</td>
<td>415</td>
<td>488</td>
<td>575</td>
<td>663</td>
<td>867</td>
<td>1,280</td>
<td>1,840</td>
<td>2,586</td>
<td>2,868</td>
<td>3,011</td>
</tr>
</tbody>
</table>

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As can be seen in Table 1, the number of gifted education students was 31,100 at the rate of 0.4% of all students in 2005, but the ratio of the gifted education students to all students amounts to approximately 1.9% in 2013. In 2012, the ratio exceeded the target figure of 1% of the 2nd gifted education master plan and leads to expectation that the number of gifted education students will increase continuously as shown in current data. In addition, the number of gifted education centers has rapidly increased to 3,011 in 2013, which is more than 6 times of the 488 centers in 2005.

Looking at the 2013 gifted education status by domains presented in Table 3, the scope of gifted education is divided into 11 domains, among which the number of students in mathematics and science (integrated) constitutes 50.7% of the total student enrollment in gifted education students. In addition, the total number of students in domains related to science (mathematics, science, invention and information) is about 89.8% of the total number of gifted education students, which leads to conclusion that gifted education of Korea is focused on mathematics and science related areas, and education in other areas including languages, arts and cultural sciences is being carried out within the rate of less than 10%.

Table 3. Number of Gifted Education Students by Domains and Gifted Education Institutions

<table>
<thead>
<tr>
<th>Institutions for gifted education</th>
<th>Teachers in charge of gifted education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifted School</td>
<td>Principal of gifted school</td>
</tr>
<tr>
<td>Gifted School</td>
<td>Assistant principal of gifted school</td>
</tr>
<tr>
<td>Gifted School</td>
<td>Teachers of gifted school</td>
</tr>
<tr>
<td>Gifted School</td>
<td>Professional counselor of gifted school</td>
</tr>
<tr>
<td>Gifted Class</td>
<td>Teachers in charge of gifted class</td>
</tr>
<tr>
<td>Gifted Class</td>
<td>Professional counselor of gifted class</td>
</tr>
<tr>
<td>Gifted Class and School</td>
<td>Librarian teacher</td>
</tr>
<tr>
<td>Gifted Education Center</td>
<td>Director of gifted education center</td>
</tr>
<tr>
<td>Gifted Education Center</td>
<td>Instructor</td>
</tr>
</tbody>
</table>

Source: GED (2013)

According to the Articles 25 to 27 of the Gifted and Talented Education Promotion Enforcement Decree (GTEPED), teachers in charge of gifted education are classified by gifted classes, gifted schools and gifted education centers as shown in Table 4.

Table 4. Categories of Teachers in Charge of Gifted Education

Source: Kim et al. (2010), p. 425
The qualifications (recruitment criteria) of teachers in charge of gifted education are specified in the same GTEPED (Articles 25 to 27), and teachers in charge of gifted education should have a teaching certification as stated by the elementary and secondary education act and complete a certain period of training courses recognized by a superintendent of schools or minister of education, science and technology. The status of teachers in charge of gifted education in 2013 is shown in Table 5. In proportion to the number of educational institutions, the number of teachers in charge of gifted class is the largest, followed by that of teachers from gifted education centers operated by office of education, followed by gifted education centers attached to a college and gifted school. The number of students per gifted education teacher turned out to be 4.5 persons.

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>Gifted Class</th>
<th>Gifted Education Center</th>
<th>Affiliated with Office of Education</th>
<th>Affiliated with Universities</th>
<th>Gifted School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of teachers in charge of gifted education</td>
<td>15,720</td>
<td>7,842</td>
<td>2,118</td>
<td>1,134</td>
<td>26,814</td>
<td></td>
</tr>
</tbody>
</table>


Problems and Future Directions

Problems

Cho and Lee (2015) listed problems in Korean gifted education as relatively small number of gifted students served, limited domains where students are identified; limited hours of gifted education services; and lack of alignment of gifted education in secondary schools and universities.

The ratio of gifted students served by gifted education is relatively small (less than 2%) compared to those found in the definition of giftedness (Gagné, 2003; Renzulli, 2004). Domains of gifted education are concentrated in STEM and arts, ignoring talents in other domains. In addition, 4th grade is the earliest when children can be officially identified to participate in gifted education. Also, there is not enough effort or a system for identifying high potential students from disadvantaged backgrounds.

Gifted education hours for students in grades 4-9 are very limited, since they are not provided during the regular school hours, but mostly on weekends and a couple of weeks during the vacation time. Lack of alignment between educational programs for the gifted in high school and at the university minimizes the effects of gifted education at the secondary school level. University entrance examinations focus on achievement, whereas the goals and objectives of gifted education curriculum focus on creativity with acceleration. Those educated with a focus on creativity with acceleration in science high schools and science academies
cannot find challenging programs at universities. There needs to be a system in which universities recognize students’ advanced accomplishments and allow for more challenging studies (Lee, 2003).

**Future Directions**

The 5 Year National Plan for the Development of Gifted Education (2013-2017) established through collaboration among four Ministries includes: Expanding the number of students and talent domains to be served with gifted education programs; developing a support system to improve the quality of educational programs through systematic differentiation of programs in different institutions for the gifted; enhancing the professional quality of teachers for the gifted; and providing more support for research and development on gifted education (Suh et al., 2012).

Ratio of students to be served with gifted education in Korea should be increased from 1.78% in 2012 to 10% in 2017 of all students. Gifted students should be identified earlier than age 10. Ten percent of them will be under-represented gifted students, including those who are culturally different, financially challenged, from geographically remote places, and with disabilities. To identify students of high potential, but not high achievement, teacher recommendations based on observations, portfolio, and performance assessments, should be used more (Suh et al., 2012). The domains of talent for gifted education should also be expanded from STEM and arts to such areas as humanities and social studies. Continuity in gifted education service between the grades and school levels needs to be strengthened.

To enhance the quality of gifted education, national standards for gifted education programs and a system for evaluating program effectiveness should be developed and utilized. Selected exemplary programs which are proven to be effective will be widely distributed. Consulting on the strengths and weaknesses of gifted education programs in each institution should be provided systematically by central and local governments. (Lee et al., 2013a; Lee et al., 2013b).

Since 2008, the central government launched educational policies to nurture creativity of students through multiple disciplinary or convergent approach for teaching and learning through collaboration among students and teachers with diverse backgrounds and experiences. Currently, multiple disciplinary approach is practiced rarely, since most of the gifted education has been compartmentalized by domains.

Gifted education is discontinued after students enter university, since colleges and universities do not provide more challenging programs for those graduated from specialized high schools or academies. Universities need to take on a more active initiative in offering more challenging programs. One way is to provide an honor’s program for selected students or a special track that offers honors courses. It is also recommended to provide a seamless program for students to continue from undergraduate to doctoral programs by integrating them
into one so that students do not have to wait until they complete one program in order to participate in more challenging programs.

In order to improve the professional quality of teachers, it is recommended that experts and professionals in universities and research institutes should be allowed to mentor students in gifted education programs. Only six of the 24 science high schools for the gifted in Korea are allowed to hire scientists or engineers to teach gifted students. There needs to be more opportunities for professional development in gifted education to provide continuous training to teachers for the gifted.

References


Law for Gifted and Talented Education in South Korea: Its Development, Issues, and Prospects

Jaeboon Lee¹, Byoungjik Kang² & Deoknan Lee³

Abstract
With the enactment of the Gifted and Talented Education Promotion Act (GTEPA) (2000) and the Gifted and Talented Education Promotion Enforcement Decree (GTEPED) (2002), South Korea acquired a full-fledged legal system for implementing gifted and talented education. Since 2000, the administration of gifted and talented education in South Korea entered a new level of development compared to the previous era. With the enactment, official definitions of giftedness and gifted and talented education were adopted. Accordingly, gifted education was recognized and promulgated into society. The government mapped out a comprehensive plan for gifted education on legally firm ground with the concerted efforts from various ministries in the name of gifted and talented education. New types of educational institutions and administrative systems for gifted education were founded such as gifted schools, gifted classes, gifted centers, and departments for gifted education. Lastly, the importance of educating each student in accordance with his/her potential gained more impetus when extremely low birthrates and an aging population threaten the sustainability of Korean society. In general, the enactment of the gifted education law acts as a divide of eras, before and after the law.

Key Words: gifted and talented education promotion act, educational legal system, policy and administration in South Korea

Güney Kore’de Üstün Yetenekliler Eğitimi Yasası: Gelişimi, Sorunlar ve Beklentiler

Öz

Anahtar Sözcükler: üstün yetenekliler eğitiminin teşviki yasası, eğitimde yasal sistem, Güney Kore üstün yetenekliler eğitimi

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Introduction

Beginning in 2000, gifted and talented education (hereinafter referred to as ‘gifted education’) in South Korea was promoted on the basis of its own legal framework. The Gifted and Talented Education Promotion Act (hereinafter referred to as ‘GTEPA’) legislated in 2000 and the Gifted and Talented Education Promotion Enforcement Decree (hereinafter referred to as ‘GTEPED’) legislated in 2002 are positive policy examples which provide comprehensive and detailed terms for gifted education. Of course, educational activities and institutions for gifted students existed before the year 2000. However, the enactment of the GTEPA and GTEPED is recognized as the start of a new era of gifted education in Korea in terms of drastic expansion in its quantity and the settlement of administrative issues (De Wat & Jeong, 2008). For example, the number of students participating in gifted education increased from 19,974 to 121,433 between 2003 and 2013, and the number of institutions offering gifted education increased from 400 to 2,868 during the same period (Ministry of Education, Science, and Technology and Korean Educational Development Institute, 2013). In addition to an increase in students, the enactment of the GTEPA and GTEPED is claimed to be the turning point for the stabilization and maturation of gifted education in Korea (Lee, Kang, & Lee, 2012).

In this regard, we should evaluate education laws to gain a more in-depth understanding of Korea’s gifted education. Regarding the legal system in Korea, the GTEPA legislated by the National Assembly is the core of the law compared to the GTEPED, which was enacted by the Ministry of Education in order to actualize the purpose and regulations of the GTEPA on an administrative level. This paper analyzes the background, process, content, and impact of the laws, with a focus on the GTEPA.

Before the Enactment of the Gifted and Talented Education Promotion Act

The foremost legal ground for gifted education in South Korea has roots in Article 31 of the Constitution of the Republic of Korea, which regulates, “All citizens, according to his/her ability, shall have an equal right to receive education”. This clause implies that the fundamental right and equality of education are guaranteed under any circumstances such as social and economic status, gender, religion, race, etc. (Lee, 2009, p. 195).

To actualize the equal right of education, the Fundamentals of Education Act established Article 19 (Gifted and Talented Education) in 1997, which mandates, “State and local governments shall carry out and establish policies for educating children who have exceptional abilities in fields such as the academic, artistic or athletic”. As this clause shows, Article 19 regulates the basic responsibility of state and local governments for gifted education and follows the mandates of Article 31 of the Constitution, which stipulates an ‘equal right to receive education’ for ‘all citizens’ by their ‘ability.’ In addition, the Fundamentals of Education Act is the first rule which specifies clearly the term ‘Gifted and Talented Education.’ Finally, the GTEPA was established in 2000 to solidify the regulations related to gifted education following the
Fundamentals of Education Act of 1999. In this respect, the history of gifted education in South Korea has taken a decade to develop.

However, even before the enactment of the GTEPA, policies and activities took place at the level of the central government. The government of Korea was interested in gifted education and began shaping policies for gifted education as early as the 1980s (Cho et al., 2000). For example, in the year 1980, special classes for the gifted in science were set up in Gumi High School as a pilot program. In 1981, experimental programs for the gifted in science began in city and local boards of education nationwide (Cho et al., 2000). Following these movements, the Ministry of Education commissioned policy research to map out a comprehensive development plan for gifted education, which decided that the government set up a special type of high school for the gifted in science. At last, in 1983, the government established a special high school for the gifted in science called Gyonggi Science High School in Gyonggi Province. In 1984, three more science high schools were founded in Gwangju City, Daejon City, and Gyongnam Province. Institutionally speaking, this type of science high schools from the 1980s is the basis of gifted education in Korea.

With a framework of policies and institutes of gifted education in place, a national research lab called the ‘Gifted Education Research Division’ was installed in 1987 under the Korean Educational Development Institute (KEDI). The division carried out various research studies to develop identification instruments, programs, as well as policies. With these trends, the President of Korea approved an ‘Educational Reform Plan for the Establishment of New Education System’ in 1995 which contained details related to gifted education. According to this Educational Reform Plan, the Ministry of Education set up the Gifted Education Center for Science as an affiliate institute of the Korean Advanced Institute of Science and Technology in 1997. The government expanded the gifted education centers from nine to twelve across the nation between 1998 and 1999 (Lee, 2009).

During the 1980s and 1990s, typical forms of gifted education were acceleration including grade-skipping, early entrance to elementary school or colleges, and specialized high schools (Min et al., 2010). These accelerated forms of gifted education had roots in the Constitution and the Fundamentals of Education Act. However, these methods revealed various limitations such as a lack of evidence-based identification of gifted children and no legal framework for guaranteeing the quality of the education program.

After the Enactment of the Gifted and Talented Education Promotion Act

As mentioned earlier, gifted education in Korea secured the legal foundation beyond the level of policy in 2000 with the enactment of the GTEPA. Since then, gifted education is an obligatory education statute. As Article 1 (purpose) of the GTEPA stipulates, this law was established on the basis of Article 12 (Learners) and Article 19 (Gifted and Talented Education) of the Fundamentals of Education Act.
The significance of the GTEPA is the fact that South Korea obtained irreversible legal and institutional foundation that advocates fought for since 1980s. At that time, policymakers and practitioners of gifted education felt it difficult to secure stability in gifted education with only educational policies without legal foundation. For instance, science high schools for the gifted did not have a legal basis to act as gifted institutions. In turn, science high schools did not have an appropriate curriculum for the gifted because it had to follow regulations which were applied to general education (Cho & Oh, 1997).

The inconsistency of gifted education was based on who was in charge of gifted education and which administration won the last election. This meant that gifted education before 2000 could not help but be swayed by multiple variants. Consistency required not just policy but also legal guarantees. The enactment of the GTEPA in 2000 was the step needed to secure this consistency.

Since 2000, the GTEPA has been amended several times to resolve current issues and to better reflect alternative practices in schools. The most significant change occurred in 2005. Among the clauses amended were the articles “a person who requires special educational support for having conspicuous talent and potential” (Article 2-8), “the responsibilities of local governments” (Article 3-2), “alteration of main body for selecting gifted students from superintendent to the head of the institute” (Article 5), and “establishment of system to include minority[ities] who are in the condition of social and economic disadvantages” (Article 5). In general, the 2005 revision moved Korean education in the direction of acquiring more specific regulations for gifted education and decentralization in making policies for gifted education.

Table 1. Progression of Legal Revisions in Gifted and Talented Education

<table>
<thead>
<tr>
<th>Period</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1995</td>
<td>May 31 Education Reform Plan (to set up measures to develop a scientific identification tool of gifted students and to activate educational institutes for the gifted)</td>
</tr>
<tr>
<td>Jan. 2000</td>
<td>Enactment of the Gifted and Talented Education Promotion Act</td>
</tr>
<tr>
<td>Apr. 2002</td>
<td>Enactment of the Enforcement Decree for Gifted Education</td>
</tr>
<tr>
<td>Dec. 2005</td>
<td>Revision of the Gifted and Talented Education Promotion Act (to transfer authority of selecting gifted students from the superintendent to the head of educational institutes)</td>
</tr>
<tr>
<td>Dec. 2006</td>
<td>Revision of the Enforcement Decree (to mandate regulation for setting up a comprehensive database system for gifted education nationwide)</td>
</tr>
<tr>
<td>Jun. 2009</td>
<td>Improvement of the selection system for the recommendation formula</td>
</tr>
</tbody>
</table>

In 2006, the GTEPED under the aegis of the Ministry of Education was amended as a follow-up to the revision of the GTEPA and added new regulation to establish a national Gifted Education Database (GED) system to collect and use data on gifted education for more effec-
tive policymaking and advancements in the gifted education system (Suh et al, 2012). Table 1 chronicles the legal revisions in Gifted Education since the 1990s.

**Characteristics and Issues of the Gifted and Talented Education Promotion Act**

Through analysis of the Gifted and Talented Education Promotion Act, we can ascertain which direction the law is headed and how South Korea understands gifted education officially. In this sense, the GTEPA provides an opportunity to determine the characteristics of the institutional, philosophical, and educational realm of gifted education in Korea.

**Concept of Giftedness and Gifted Education.** With regard to the purpose of gifted education in Korea, Article 1 of the GTEPA clearly stipulates, “The purpose of this Act is to early identify persons endowed with talents and provide them with education tailored to their competence and talents as provided for in Articles 12 and 19 of the Fundamentals of Education Act in order to encourage them to develop innate potential, seek self-realization and contribute to development of the nation and of society”.

This regulation shows that gifted education in Korea includes dual aspects of gifted education: self-actualization in the personal realm and a contribution to society at large. This perspective distinguishes itself from the Western point of view of gifted education in terms of philosophical background. For example, the Jacob K. Javits Gifted and Talented Students Education Act of the U.S. stipulates, “The purpose of this subpart is to initiate a coordinated program of scientifically based research, demonstration projects, innovative strategies, and similar activities designed to build and enhance the ability of elementary schools and secondary schools nationwide to meet the special educational needs of gifted and talented students” (Sec. 5462, Part D, P.L. 100-297, 1988). In the case of Germany, Article 56 (Rights and Obligations) of the Bayern Law on Education and Public Education (BayEUG) stipulates, “Every student has the right to have proper service by their abilities and internal needs in accordance with the Article 128 of Federal Constitution. Because of this law, individual rights arise when and if they are determined by conditions and content in this Act or under this Act”. These examples illustrate that Western societies place more emphasis on individualism than Korean society does. It also shows that the rationale of gifted education in Korea is based on both collectivism and individualism.

Following the purpose, Article 2 of the GTEPA defines the concept of gifted as “Any person who has superior talent who requires special education to actualize their innate potential”. This definition is in line with the Marland Report in 1972, which defined gifted and talented children as “Those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society” (Marland, 1972).

The influence of the Marland Report on the definition of the gifted in Korean law is detected in the categorization of giftedness. For instance, Article 5 of the GTEPA clarified the extent of
a gifted person’s abilities as general intelligence, aptitude for a special academic field, creative thinking ability, artistic talent, physical talent, and other special talent.

**Responsibilities of the State and Local Government.** One of the characteristics of the GTEPA in Korea is that it articulates the responsibilities of state and local government. For example, Article 3 and sub-paragraph 1 stipulates, “The state has to seek the following plans for the promotion of the education for the gifted; a) establishment of a comprehensive plan on the education for the gifted, b) R&D related to the education for the gifted and dispersion, c) designation, establishment, installation and operation of the education institution for the gifted, d) designation, establishment, and operation of the education research center for the gifted, e) seeking the implementation of a plan to secure the connectivity of education for the gifted in elementary school, middle school, and high school, f) employment and training of faculty, g) support of expenses required for the education for the gifted, and h) other action plan for promoting the education for the gifted”.

In general, Article 3 specifies the responsibilities of state government in terms of promoting gifted education in quality and quantity. For this to progress, Article 4 mandates the establishment of the Central Committee to Promote Education for the Gifted. The central committee is headed by the Vice Minister of the Ministry of Education and has authority to make decisions on the following: “a) basic policies on the education for the gifted, b) matters on establishment of the comprehensive plan, c) improvement of the education for the gifted related system, and d) matters on designation and establishment of the education for the gifted”. The central committee acts as a steering entity which makes decisions at the highest level.

Paragraph 1 of Article 3 stipulates that establishment of a Comprehensive Plan for Gifted Education every five years is the responsibility of the state. What is unique about the Comprehensive Plan for Gifted Education compared to other education plans is that all ministries related to gifted education collaborate closely. To this extent, gifted education can be said to be gaining consensus at the governmental level. The first comprehensive plan for years in 2003-2007 was established in November 2002, the second comprehensive plan for 2008-2012 in December 2007, and the third comprehensive plan for 2013-2017 in December 2012. This comprehensive plan functions as a bridge to connect the regulations of the gifted education law with administrative policies. With the help of a comprehensive plan, policies for gifted education are promoted strategically and effectively based on the law and vision for the future (Suh et al, 2012).

Article 3 also regulates the responsibilities of local government from an administrative perspective. It says, “Each local government shall formulate the following policies to facilitate gifted education: a) establishment of detailed implementation plans on the local level for the promotion of gifted education under the provision of paragraph 1, and b) other supporting plans for the promotion of gifted education”. This regulation on the responsibilities of local government stemmed from the spirit of municipal autonomy in education from the late 1990s. With Article 3, the law balances the role of the state and local government in promoting gifted education. In this
sense, detailed practices and the administration of gifted education are decided by a local committee in accordance with gifted education laws and state policies.

**Types of Educational Institutions for the Gifted.** With regard to the types of educational institutions for the gifted, Article 2 of the GTEPA stipulates three kinds of institutions: gifted schools, gifted classes, and gifted centers. By law, a gifted school is a specialized high school for educating gifted students and is designated or established by the state. A gifted school can recruit students from the entire nation unlike previous special schools and enjoys a highly autonomous curriculum. The administration is not subordinated by state curriculum and regulation. As of the year 2014, there are six gifted schools in addition to the pre-existing science high schools in Korea.

A gifted class is defined as a program for the gifted established and operated under an individual primary and secondary school. It is operated in the form of extracurricular activities. Article 7 says that the state or local government may establish and operate gifted classes for some or all subjects in schools. Currently, two kinds of gifted classes operate: one is a class consisting of students from one school and the other is a class consisting of students from several schools within the same school district. These classes do not collect tuition since, in principle, they operate on state funds.

A gifted center is a type of annex institution that is established and operated either under the provision of Article 2 of the GTEPA or other applicable schools established in accordance with other laws and regulations. A gifted center is an educational institute with a city or local board of education, university, national and public research institute, or government chartered institution. Any non-profit organization related to science, technology, art, sports, and others may establish and operate an education center for the gifted (Article 8).

Currently there are two dominant types of gifted centers: one is operated by the school district, while the other by universities. Gifted centers run by the school district offer services to students who are within their own school district. Teachers from regular schools who are qualified for gifted education are dispatched for about two years. City and local boards of education take charge of all budgets and manage the centers. In comparison, gifted centers run by universities can recruit students beyond the boundary of the school district and offer more advanced programs. University faculty participates in educating students in their own institution. As of 2013, 25 gifted centers run by universities are funded by the central government (Jeong, Choi, & Shin, 2013).

**Curriculum.** As mentioned above, the types of gifted education institutions are comprised of gifted schools, gifted classes, and gifted centers. Curricula in these institutions are differentiated from each other in accordance with the characteristics of the students, operating body, academic period, educational environment, teachers, etc. Article 11 of the GTEPA and Article 24 of the GTEPED regulate the details of the curriculum. For example, Article 11 regulates that “a) when a person eligible for gifted education completes all or some of
curriculums for the gifted in an educational institute for the gifted, he/she may be deemed to have completed regular curriculums equivalent thereto, and b) the head of each educational institution for the gifted may, when deemed necessary, entrust some curriculums for relevant persons eligible for gifted education to other educational institutions for the gifted, universities, etc.”. This regulation implies that the curriculum of gifted education institutions is autonomously operated.

One of the most intriguing factors of the curriculum in gifted education is that high autonomy is secured in gifted schools in contrast to other ordinary schools. There are various types of schools for science education in Korea such as specialized science high schools, science focused high schools, as well as gifted schools for the scientifically talented. Specialized science high schools and science focused high schools have to follow national standards of curriculum compared to gifted schools. Students of gifted schools acquire qualification by credit which differs from other school-based grade systems.

**Faculty.** The faculty of gifted education by law is categorized into three types. First, incumbent teachers who are in service of the school participate in gifted education after completing 60 hours of in-service training. These kinds of teachers can obtain certificates in order to teach students in gifted classes, gifted centers, as well as gifted schools.

With regard to incumbent teachers who have acquired certificates in gifted education, they can be dispatched to various gifted institutions such as gifted centers, gifted research centers, or administrative positions for a specific time period. For this matter, sub-paragraph 2 of Article 12 defines the regulation about the dispatch of faculty members, “when it is required for research, competency development and others related to the education, the authorized person of employment of faculty may dispatch the faculty in charge of education for the gifted to other educational institution[s] for the gifted, education research center[s] for the gifted, education administrative institution[s], domestic and overseas education training and research institution[s], and other institutions for a certain period of time”. Usually, their role is taking charge of teaching or managing gifted programs.

Second, another type of faculty is those who do not have a national teaching certificate but are hired directly by the gifted school. In general, Korean public school teachers need to pass the national exam and then acquire the status of civil servant. Direct recruitment by public schools without national exams or without being a civil servant is highly exceptional. This way of recruiting teachers was introduced because gifted schools needed expert teachers in STEM fields for high quality education.

Third, another type of faculty is being an instructor for a particular subject in gifted education institutions. Artists, scientists, and other experts can teach as part-time instructors in gifted institutions. This type of teacher can be hired by gifted schools, gifted classes, and gifted centers. Article 12 of the GTEPA stipulates that regulations related to faculty such as employment standards for recruiting teachers, payment, benefits, working conditions, and placement criteria be defined by the GTEPED.
Conclusion

In this paper, the legal system of gifted education in Korea is presented. As mentioned earlier, there are two kinds of legal systems for gifted education – The GTEPA legislated by the National Assembly and the GTEPED legislated by the Ministry of Education as a presidential decree. The enactment of these two laws contributed to the development of gifted education with no comparison or precedent in the history of education in Korea. Implications and issues are discussed below in terms of the law.

First, prior to the enactment of GTEPA, GTEPED students past the 4th grade in elementary school were allowed to enter gifted institutions such as gifted classes and gifted centers. In this context, Cho et al. (2000) opposed age and grade restrictions related to when a student could enter gifted education. Currently, GTEPED regulates the level of the gifted school as being equal to or lower than that of high schools. With regard to this matter, some argue that gifted schools should be limited to middle or elementary schools (Lee, 2004). However, this argument has to be carefully considered because of potential negative side effects such as overheated competition or inefficiency of education for young children. This implies that the law of gifted education in Korea has to sustain proper balance between earlier development of giftedness and prevention of negative side effects from heated educational competitions among parents and children.

Second, in regard to the curriculum, GTEPA does not specify when gifted education should or can be provided. However, administrative order does not permit gifted programs to be provided during regular school hours (Min et al., 2010). This means that aside from gifted schools, other gifted education institutions are permitted to provide gifted education as a supplementary program, not as a regular curriculum. This contradicts Article 11 of the GTEPA which regulates ‘recognition of completion and commissioned education.’ Considering this, the regulation and administrative order have to be settled to explore how to negotiate the conflicts between the legal regulations and practices in gifted programs.

Third, on the aspect of governance, the GTEPA and GTEPED regulate the accountability of a nation, but do not articulate the role of involved ministries specifically for handling gifted education and do not mandate control towers with which to coordinate matters of gifted education (Min et al., 2010). For instance, even though the Ministry of Education coordinates matters of gifted education, the authority of coordinating is problematic in terms of the law. As a result, it lacks flexible adjustment between related ministries when gifted education policies are carried out. Also, the responsibility of state and local government in terms of securing funds for gifted education is not specified in the law. Therefore, the system of governance at the level of central administration has to be clarified in the law.

Lastly, because the current law was established with the purpose of promoting gifted education, there is a lack of regulating accountability in terms of legality. In this matter, Lee, Kang, and Lee (2012) suggested that the GTEPA be revised into the Gifted and Talented Education...
Act (GTEA). They pointed to the GTEPA as the proper tool to spur development in quantity at the initial stage. However, a decade since its inauguration, gifted education has to move on to the stage of quality and accountability.

These issues above do not mean the law has critical weaknesses or flaws. Rather, current laws need to be supplemented for a changing reality. Furthermore, these concerns imply that the promotion of gifted education based on policy and administration is not the only way to settle all matters of gifted education these days. After all, in order for gifted education in Korea to advance to a righteous and stable phase, not only the policy and administration but also the legal system has to improve in accordance with changes and needs of the societal environment and educational context.

References


Domain-Specific Identification of Talented Students in the Republic of Korea

Seokhee Cho¹

Abstract
Korean practices of gifted identification have special features such as being highly selective to the top 1.87% of all students, alignment of identification with gifted education curriculum, identification by specific domains mostly in STEM, multi-step screening with multiple measures, yearly identification, and identification of under-represented gifted students. Gifted education in elementary and middle schools is mostly provided through gifted classes, followed by school district gifted education centers, and university affiliated gifted education centers, whereas gifted education for high school students is mostly provided in special schools. One of the well-established principles is collecting multiple pieces of evidence that measure different constructs and characteristics aligned with the gifted program’s goals and objectives, ideally utilizing a variety of assessment formats (e.g., paper-and-pencil, performance assessment). A newly introduced policy for identification is to promote selection of gifted students solely based on teacher observation-recommendation in order to reduce parents’ excessive tutoring practices for test preparation. However, its expansion should be carefully reconsidered, due to its relatively low validity and reliability. Rather, teacher observation-recommendation should be used as a supplementary identification procedure to create a talent pool or as additional assessment in conjunction with test scores.

Key Words: identification, Korea, STEM, domain-specific identification

Kore Cumhuriyeti’nde Üstün Yetenekli Öğrencilerin Alana Özgü Tanılanması

Öz
Kore’de üstün yeteneklilerin tanılanması uygulamaları, üst %1,87’lik öğrencileri seçmek gibi aşırı seçici olmasının, üstün yeteneklilerin eğitim müfredatları ile uyumu olması, özellikle STEM gibi alana özgü tanımlama, çoklu araç ve çok basamaklı tarama, her yıl tanımlama ve dezavantajlı üstün yeteneklilerin tanımlanması gibi özelliklere sahiptir. İlkokul ve ortaokularda üstün yetenekliler eğitimi genellikle özel sınıflarda sağlanırken, eğitim bölgelerindeki üstün yetenek eğitim merkezlerinde de hizmet verilmektedir. Liselere ise üstün yetenekliler eğitimi çoğunlukla özel okul uygulamaları ile verilmektedir. İyi yapılandırılmış prensiplerden birisi üstün yetenek programlarının amaç ve hedefleri ile uyumlu, farklı yapı ve özelliklerin çeşitli ölçme formatları (kâğıt-kalem testleri ve performans ölçümü gibi) kullanarak ölçülüdür, çoklu değerlendirmeleri yaklaşımındadır. Yeni tanımlama politikasında sadece öğretmen gözlem ve önerisini temel alınarak, sık sıklichta başvurulan sınavlar hazırlık uygulamalarının azaltılması amacıyla alınmaktadır. Ancak bu uygulamaların yaygınlaştırılması nispeten düşük geçerlik ve güvenirliliklere dolaylı dikkati bir şekilde tekrar dan düşünümlüdür. Bunun yerine öğretmen önerileri bir yetenek havuzu oluşturmak veya test puanları ile birlikte tanımlama sürecinde tamamlayıcı veri olarak kullanılmalıdır.

Anahtar Sözcükler: tanımlama, Kore, STEM, alana özgü tanımlama

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Legal Foundation of Gifted Education Students Identification

Gifted education in Korea is based on the Article 19 (Gifted and Talented Education) of Fundamentals of Education Act, the Gifted and Talented Education Promotion Act (GTEPA) and the Gifted and Talented Education Promotion Enforcement Decree (GTEPED) (Ministry of Government Legislation, Legislative Information Division, 2014).

GTEPA Article 5 (Selection of gifted education students) states how to identify gifted education students. It can be summarized as follows: Directors of gifted education institutions can select their students among those who exhibit high performance or high potential in the following traits or disciplines such as general intelligence, specific academic aptitude, creative thinking ability, artistic talent, physical talent, and other areas of talents and those whose talent domain is well aligned with the education programs of the gifted education institution. Directors of gifted education institutions should also develop a procedure for identifying under-represented students including those who are economically disadvantaged, culturally diverse, challenged by disabilities, or from geographically remote areas (Cho, Lee, Jeong, Hwang, & Lee, 2006; Lee, Yoo, & Yeo, 2011).

The GTEPA Article 5 guides the selection of gifted education students as follows:

1. GTEPA specifies only the procedure and does not regulate various aspects of identification such as domains of giftedness, target age/grade for identification, or the ratio of students to be selected.
2. GTEPA requires alignment between the gifted education programs and identification in terms of talent domains. Therefore, gifted education institutions design gifted education programs first, and then plan gifted identification.
3. Directors of gifted education institutions are responsible for ensuring the identification of promising students from under-represented groups.
4. Selection of students will be discretionarily conducted by directors of gifted education institutions.

GTEPED Article 11 further specifies the procedures of student selection as follows: Students or parents should submit an application to the director of the gifted education institution with a recommendation letter from the teacher or principal of the school where the student is currently attending. Director of the gifted educational institution should obtain approval from the selection committee of the institution on the final candidate students to be selected. Then, the director should inform the applicants of the results. Instruments or assessment methods might include the following:

1. Standardized intelligence test, thinking test, creative problem solving test, or other tests, interviews or observations to identify superior aptitude in specific subject or specific disciplines.
2. Performance assessments, interviews or observations to identify talents in artistic or physical talents.
GTEPED Article 11 on selection of gifted education student is characterized as follows:

1. It specifies the procedure that parents should take initiative in the gifted identification process by requesting teachers to recommend their children. Teachers in regular classrooms should be trained on the characteristics of gifted children in order to be able to write a valid recommendation.

2. The use of standardized tests is stated as one of the various assessment alternatives.

3. Any assessment method can be used for identification of gifted education students including paper-pencil test, interviews, performance assessment, and observations. For the paper-pencil test, the Article 11 listed but not limited the aspects that can be assessed.

Although gifted education institutions are permitted to choose from various alternatives for identification, national and/or provincial policies influence the directors’ decision on gifted identification and education programs. Directors of gifted education institutions are also permitted to develop new identification instruments every year. They can commission experts or the National Research Center for Gifted Education at KEDI to develop new identification instruments.

**General Trend in the Identification of Gifted Education Students**

Although each gifted education institution can choose its own identification instruments, assessment methods, and specific procedures, there is a general trend in gifted identification in Korea: Alignment of identification with gifted education curriculum; identification by specific domains; multi-step screening, teacher observation-recommendation system; yearly identification; and identification of under-represented gifted students (Suh, Park, Park, Cheong, Lee, & Chae, 2013).

**Alignment of identification with gifted education curriculum.** In Korea, the goals and nature of educational program is decided first, and then students who will succeed and get the most benefit from the educational program are selected. This approach is more based on talent development paradigm, where identification measures are directly relevant to the curriculum (Dai & Chen, 2013; Peters, Matthews, McBee, & McCoach, 2014).

**Identification by specific domains.** Since each gifted education institution provides programs in one or two specific domains such as STEM, Humanities, Social Studies, Arts, or Sports, the identification is also conducted by specific domains. Especially, creative problem solving tests or performance assessments are designed to assess domain-specific talents. Eighty-three percent of gifted education students are served with math and science programs, which are defined as scarcity talent by Tannenbaum (2003), because these investigative talents are always in short supply. Meanwhile, gifted education students in the surplus talent areas such as arts, music, and sports each include much lower ratio of all gifted education students, as seen in Table 1. Out of various academic talents, gifted education pro-
grams in STEM are the most prevalent, whereas gifted education programs in social studies and humanities are rare.

<table>
<thead>
<tr>
<th>Domains</th>
<th>Math</th>
<th>Science</th>
<th>Math</th>
<th>Science</th>
<th>Invention</th>
<th>Information</th>
<th>Foreign Languages</th>
<th>Music</th>
<th>Arts</th>
<th>Sports</th>
<th>Humanities</th>
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</table>

*Note: Science Academies and Science High school students are categorized into math and science.*

**Multi-step screening.** A multi-step screening procedure is mostly used at the specialized science academies and science high schools because of its cost-effectiveness and high validity. It begins with the least costly methods for all applicants and proceeds to the next costlier methods with less number of students. Assessments proceeds from (1) teacher recommendation; (2) group paper-pencil test of creative problem solving ability in the related specific domain or cognitive ability; to (3) performance assessments such as interviews, camps, or workshops. As the identification proceeds, the number of students participating in assessment is gradually reduced. In the beginning with a large number of applicants, a less costly method such as document review or a group paper-pencil test is used. At the last step, when the number of students is getting close to the actual number of students to be accommodated in the program, a highly valid, but costly performance assessment is employed. It is a rule not to combine the scores across several screening steps, since the nature of assessments at each step is so different that combining scores of different nature will result in a total score whose assessment construct becomes obscure (Ministry of Science and Technology, 2002; Seo, 2004).

![Figure 1. Multi-Step Identification System](image)

**Teacher observation-recommendation system.** Teacher observation-recommendation system has been promoted for identifying gifted education students at the gifted education centers and gifted education classes since 2010 (Suh, et al 2013). Instead of administering group tests or performance assessment on creative problem solving, teachers
are encouraged to recommend students to gifted education programs based on their classroom observation. Regular classroom teachers are provided with a behavioral checklist and professional development on the gifted behaviors that are to be observed. This change in the selection policy was intended to minimize the influence of private tutoring on test preparation and select more students who might have high potential but exhibit low performance. However, the risks of the teacher observation-recommendation system were found to be greater than its benefits (Han, Yang, & Park, 2014; Kim, H. & Han, 2013; Kim, S. Y. & Han, 2013; Lee & Han, 2009; McBee, 2016). Difference in general intelligence of students identified between multi-step screening and teacher observation-recommendation system was not significant. However, those who were identified through teacher observation-recommendation showed higher vocabulary use, comprehension, and schematization than those selected through multi-step screening tests. Career aspirations were also significantly different. Students selected through teacher observation-recommendation system showed diverse career aspirations including enterprising, social, realistic, investigative, and conventional career, where as 72% of the students selected through multi-step identification belonged to investigative career category. Probably because regular classroom teachers who are not trained on gifted education may not be able to recognize investigative characteristics, whereas they can recognize leadership, inter-personal relationship skills, and communicative skills more easily. Although teacher observation-recommendation system was intended to provide more under-represented gifted students with opportunities to participate in enrichment programs, it is highly possible that more of the teachers’ favorite students who demonstrate high achievement, good behaviors and good communication skills are selected more than those who might have high potential with unfavorable behaviors and lower communication skills (Han & Oh, 2011; Han, Yang, & Park, 2014).

These findings demonstrate that the teacher observation-recommendation system for student selection does not contribute to the alignment of identification with the educational programs, since gifted education programs aim to nurture investigative talents, whereas selected students are interested in other kinds of careers. Alignment of assessment tools with the definition of giftedness, and with the gifted program’s goals and objectives and desired outcomes for students should be secured for high validity of identification (Feldhusen, Asher, & Hoover, 1984; Peters, Matthews, McBee, & McCoach, 2014).

**Yearly identification.** Most gifted education institutions except self-contained specialized high schools, practice yearly identification to determine who will participate in the program again the following year. Admission to a program is limited only for a year, even though selected students can continue participation in the program for three years. Therefore, the students who were admitted previously may have to leave and those who were not admitted may have a chance to participate in the program the next year based on the yearly screening results.
Identification of under-represented gifted students. There are four socially dis-advantaged groups of students classified by Korean laws of social welfare: Geographically remote, economically disadvantaged, culturally different, and personally challenged because of disabilities (Cho, Lee, Jeong, Hwang, & Lee, 2006; Lee, Yoo, & Yeo, 2011). Children from the socially disadvantaged groups are under-represented in gifted education programs. For example, gifted children from multi-cultural families may not be recognized because of their double barriers with economical disadvantage and limited Korean language proficiency. As of September 2013, only 2.76% of students in gifted education institutions are from these minority groups (Suh et al., 2012). However, they are likely to drop out from the gifted program. Recent research (Suh et al., 2012) found that only a few, but more than before, gifted education institutions provide the under-represented gifted students with bridge programs in order to help them to be mainstreamed into the gifted education programs successfully.

Number of Participating Gifted Education Students

As of 2013, there are 121,433 (1.87% of all students) students participating in a gifted program (see Table 2). Gifted education classes accommodate the greatest number of students, mostly in elementary and middle schools, followed by gifted education centers managed by school districts, gifted education centers affiliated with universities, and special schools for the gifted.

Table 2. Number of Students by Type of Gifted Educational Institution

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>Science Academies</th>
<th>Science high schools</th>
<th>Gifted Education Centers</th>
<th>Gifted Education Classes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Institutions</td>
<td>25</td>
<td>269</td>
<td>66</td>
<td>2,651</td>
<td>3,011</td>
</tr>
<tr>
<td>Number of students</td>
<td>5,263</td>
<td>32,444</td>
<td>8,735</td>
<td>74,991</td>
<td>121,433</td>
</tr>
<tr>
<td>%</td>
<td>4.33%</td>
<td>26.72%</td>
<td>7.19%</td>
<td>61.76%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: GED (2015)
Note: Students of Science Academies are recruited at the national level, whereas those of science high schools from their provinces or cities.

The number of elementary and middle school students identified for gifted education is greater than the number of high school students in gifted education (see Table 3). This is because elementary and middle school students attend gifted classes and gifted education centers which provide enrichment program as extracurricular activities, whereas high school students mostly attend self-contained specialized schools, which provide challenging curriculum throughout the academic year during the regular school hours.

Table 3 Number of Students by School Level

<table>
<thead>
<tr>
<th>School levels</th>
<th>Elementary</th>
<th>Middle</th>
<th>High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifted Education Students</td>
<td>67,396</td>
<td>40,607</td>
<td>13,430</td>
<td>121,433</td>
</tr>
<tr>
<td>All students</td>
<td>2,784,000</td>
<td>1,804,189</td>
<td>1,893,303</td>
<td>6,481,492</td>
</tr>
<tr>
<td>%</td>
<td>2.42%</td>
<td>2.25%</td>
<td>0.71%</td>
<td>1.87%</td>
</tr>
</tbody>
</table>

Figure 2 shows that gifted education in elementary and middle schools is mostly provided through gifted classes, followed by school district gifted education centers, and university affiliated gifted education centers, whereas gifted education for high school students is mostly provided in special schools.

![Figure 2. Number of Students in Gifted Education by Type of Institution and School Level](image)

In summary, the statistics on the number of students participating in gifted education demonstrate that gifted education students in Korea are selected by each domain, by directors of each gifted education institutions following the multi-step screening rule.

**Examples of Identification in Each Institution**

In order to illustrate the practice of identification of gifted education students, examples of identification procedures, instruments, and criteria at specialized high schools for gifted education, gifted education centers, and gifted classes will be reviewed.

Specialized high schools for gifted education share many commonalities each other with slight differences in the choices of instruments, number of students to be selected, educational domains, procedures, and criteria. Out of 24 specialized high schools for gifted education, the example of the Korea Science Academy (KSA) will be reviewed, since it is evaluated as attempting to assess students’ creative problem solving abilities the most authentically (Lee, Kim, Seo, Kang, Kim, & Lee, 2013).

**Selection of Students at Korea Science Academy**

KSA is a specialized high school for the gifted and it was established in 2003 to provide a challenging science and math program to 144 students recruited at the National level. KSA’s goal is to cultivate creativity of students in Math and Science. Therefore, it is natural to select students who have demonstrated creative problem solving abilities in this domain (Ministry of Science and Technology, 2002; Seo, 2004).

For selecting students, KSA applies three steps assessment model: First stage is to review documents to select the best 1500 students out of all applicants; second stage is to administer
group paper-pencil tests to screen the best 200 out of 1500 students; third stage is to administer performance assessment to finalize the best 144 students. Specific identification criteria, instruments, and details of the procedure are prepared by the Students Selection, Recommendation, and Evaluation Committee (SSSC) of the KSA.

The 1st stage of screening is to review students’ school records including grade point averages (GPAs), creativity, motivation for learning, passion, and personality. The 2nd stage of screening is to administer a group paper-pencil, creative problem solving tests in math and science. Problems used in the test should require students to solve math and science problems in a creative manner utilizing their knowledge and skills in math and science. Problems used are mostly open-ended in order to require students to think and solve using a multiple disciplinary approach. KSA has a unique policy to select students whose score in any one subject out of Math, Physics, Chemistry, and Earth Science is within top 5% of 144 students, even if their average score of all subjects is ranked below 144th.

The 3rd stage of screening is to select the final 144 students and it is conducted in two different ways: One way is evaluating students’ performance in math and science for 3-4 days while students stay in a school dormitory and the other way is, a newly introduced approach, student portfolio review by an admission officer. KSA is going to compare the validity and efficiency of the two methods through follow-up research. Students choose one of the two methods for screening when they apply. Out of the final 144 students, 100 (70% of 144) students will be admitted through multi-step testing, whereas 44 students (30% of 144) will be admitted through the admission officers’ review of portfolio. Specific methods for performance assessment may include observation of open-ended problem solving processes, science lab research, and an oral defense through intensive Q&A session. In this process, not only their creativity in math and science, but also their personality is also evaluated.

The portfolio should include application, school record, recommendation, statements (reason for application, science talent, Goals of study, future plan), and an essay on a topic which can reveal one’s science talent by writing about personal experiences, or creative products that might reveal their science talent. Officers will evaluate the portfolio in terms of their originality, relevance, value, elaboration, and integrity.

Selection of students in KSA has strengths of evaluating multiple aspects of giftedness using information from various sources. However, it is criticized for low cost-effectiveness, since it costs high to have students stay in the dormitory for 3-4 days requiring many proctors.

**Selection of Students for After-School Programs at Gifted Education Centers**

Gifted education centers are affiliated either with universities or with provincial/municipal offices of education. These gifted education centers provide enrichment programs during after-school hours (Lee, 2012). The centers affiliated with universities provide more challenging and advanced programs than the gifted education centers affiliated with provin-
cial/municipal offices of education. Since 2002, selection of students at these after-school gifted education centers is generally conducted through a multi-step screening procedure. The multi-step screening is quite similar to the procedure used at the specialized high school for gifted students, except that the performance assessment will be conducted only during the day time. For example, Kyungwon University’s gifted education center selected students through firstly, multiple-choice testing in math and science, secondly, creative problem solving tests in math and science, and lastly, performance assessments on inquiry and an in-depth oral defense. However, since 2010, the Ministry of Education, Science, and Technology started promotion of student selection through teacher observation-recommendation system because they were concerned that too many students were being privately tutored on test preparation.

Student Selection for Gifted Education Classes in Elementary Schools

Kim, H. and Han (2013) found that one of the four different methods is used in elementary schools to select students for after-school enrichment gifted classes: Multi-step screening (including paper-pencil tests, performance assessments, and interviews), group paper-pencil tests only, academic achievement records only, or self-nomination only. 594 Students who have been selected through different selection methods were compared in terms of their intelligence, creativity, motivation and self-regulated use of learning strategies. The comparison found that the gifted education class students at the school level were not significantly different from the gifted education center students at the district level. However, gifted class students were significantly different from the regular education students. In addition, gifted class students who were selected through group paper-pencil tests, multi-step identification, or academic achievement record were different from those who were self-nominated. The self-nominated gifted class students showed significantly lower intelligence, creativity, motivation, and self-regulated use of learning strategies than those who were selected through various kinds of assessments. The results warned that the selection processes based solely on teacher observation-recommendation should be examined for validity and reliability. Teacher observation-recommendation is generally recommended as a supplementary identification procedure to create a talent pool or as additional assessment in conjunction with test scores (Renzulli, 2004). Renzulli’s identification system includes 50% of students identified as gifted through teacher recommendation. But another 50% of students were identified as gifted through testing first.

Summary and Discussions

The Korean practices of gifted identification have special features such as highly selective to the top 1.87% of all students, alignment of identification with gifted education curriculum by identifying talented student mostly in STEM, multi-step screening, teacher observation-recommendation system, yearly identification, and identification of under-represented gifted students. Korean gifted identification practices are mostly based on current theories and es-
tablished principles in identification of gifted education students. One of the well-established principles is collecting multiple pieces of evidence that measure different constructs and characteristics aligned with the gifted program’s definition, goals, and objectives (Callahan, Tomlinson, & Pizzat, 1993), ideally including a variety of format types (e.g., paper-and-pencil, performance assessment). The multi-step identification at specialized high schools for gifted education follows this principle. However, selection of students based on teacher observation-recommendation at the gifted education centers and gifted classes does not. Although the concern for influence of test preparation tutoring should not be underestimated, the basic principles should be observed. In addition, NAGC (2014) also clearly states that “the use of rating scales and interviews should play only a supplementary role in the identification process. Collecting these types of information is very difficult to do well because all individuals are affected by bias and prejudice, even if only at a subconscious level (p.3).”

References


Critical Reflection on Teacher Training Programs in Korean Gifted and Talented Education

Ho Seong Choe

Abstract
This study reviewed the kinds of teacher education programs for the gifted in Korea and its development during the last 10 years and the improvements needed for the future. Central government and local education authorities implemented 261 in-service training courses in 2010. The Gifted and Talented Education Promotion Act and its Enforcement regulate the quality of these programs. From 2003 to 2013, universities and various educational institutions have developed a variety of teacher training programs including basic, advanced, overseas, leadership, specialized, and on-demand. Basic program occupied the most (61.3%), then advanced program (12.6%), and the program for administrators the least (8.8%). A total of 21,002 teachers have participated in, at least, one of the in-service training programs. Among them, 13,928 teachers have taken the basic program, 3,506 teachers joined advanced ones, and 1,208 administrators have taken more than one program. There is no formal undergraduate pre-service teacher education program, while most of the pre-service and in-service teacher education programs are offered at the graduate schools. For further development, more professional development opportunities for undergraduate students, more advanced in-service training courses, training programs in arts, athletics, and leadership; and online training; and a nation-wide professional standards system are needed to be developed.

Key Words: Teacher training, Korean gifted education, professional standards

Öz

Anahtar Sözcükler: öğretmen yetiştirimi, Kore üstün yetenekli eğitimi, profesyonel standartlar

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A Breakthrough of Korean Gifted Education in 2000

From the beginning of the 21st century, advancement and excellence in Korean education brought empirical and scientific credibility to the field of gifted education even though it had a short history and many things needed to be improved. Experts in Korean gifted education have long recognized that the number of students, institutes, classes, and people’s interests in gifted education has increased drastically within the last a couple of decades.

With the expansion of gifted education, there has been an increasing need to have well-prepared teachers in gifted education since 1960’s. However, there have been no specific or formal pre-service and in-service training programs for gifted education, until special legislation, the Gifted and Talented Education Promotion Act (2000), was promulgated.

Choe (2011) suggested that teachers’ professional development in gifted education was one of the core elements needed to have effective gifted education. In its early days, the National Research Center for the Gifted and Talented Education of the Korean Educational Developmental Institute (KEDI), has led the in-service training programs. Based on such early efforts to establish the teacher education system, the Office of Education at the local level (each province and metropolitan city), universities, and special institutes for gifted education have provided a variety of programs for teacher training in gifted and talented education thus far.

After the development of in-service teacher education programs, gifted and talented teacher education has been rapidly expanded and qualitatively developed. Teachers who have participated in in-service gifted education training programs have showed high satisfaction with the contents of programs and in fact, they have applied what they have acquired through the programs to their actual teachings. However, there have been some tasks and challenges to be resolved. Some of the tasks with high priorities include providing financial and administrative support, developing more sophisticated programs, and establishing professional standards (Choe, 2014).

In this context, this paper will discuss how the teacher education programs for the gifted and talented in Korea have been developed during the last 10 years and what kinds of improvements should be made for prospective gifted and talented teacher education programs.

Requirements for Gifted Education Teachers

According to the theoretical definition, a teacher in gifted education should be a guidance counselor that helps others understand gifted children intellectually, socio-emotionally, and culturally; and helps them to maximize their potential (Lee, 2008). As one of the main bodies of gifted education, a teacher should prepare gifted students keeping professional responsibility in mind, by providing the contents or learning resources in response to the students’ demand, and by influencing many things in students’ current and future life based on an understanding of students’ characteristics. A teacher in gifted education is the person inter-
acting with students directly and providing learning content and an appropriate educational environment.

Gifted students in Korea can participate in one of three different types of gifted education provisions: independent gifted schools, gifted education centers of universities or under the Office of Education in each province and metropolitan city, and gifted classes within regular schools.

In 2000, a historical educational law, the Gifted and Talented Education Promotion Act, was legislated for Korean gifted education. Two years later, its enforcement has been applied to gifted and talented education. This Act regulated gifted education and stated that gifted education should be provided at the national and local levels. Also, this Act has been a catalyst for establishing and opening schools, classes, and education centers for gifted students in elementary and secondary schools. It may provide significant momentum for the establishment and operation of educational institutes for gifted students across the nation.

Along with sharp increase of gifted education since 2002, there has been a growing need of gifted education teacher training programs that enable teachers to learn on how to meet the educational needs of individual gifted students. However, due to the lack of well-prepared professional gifted teacher education programs at the university level or above at that time, gifted teacher education training programs were mainly limited to the in-service training for elementary and secondary school teachers.

The National Association for Gifted Children (NAGC) in U.S.A. made efforts to have standards and requirements for specialists, endorsements, and teaching certificates in gifted education (Johnsen, 2006, 2012). However, Korea does not have any specific standards or approval systems currently in place for the teaching certificate in gifted education. Korea still need teachers with a certain level of competence to take responsibilities for gifted education (Johnsen, 2012; Landrum, Callahan, & Shaklee, 2001; Vialle & Quigley, 2001, 2002a, 2002b; Vialle & Tischler, 2009).

A well-organized recruiting and educating systems by law and policy is necessary to maintain the high quality of teachers in gifted education. According to the Promotion Act and its Enforcement, which includes the regulation of the employee selection criteria and in-service training programs for gifted education institutes, a teacher or an instructor who is entitled to teach at a gifted education institute should complete a basic course (60 hours of in-service training) within one year of being dispatched or employed.

Regarding the certification of gifted education teachers, Act 12, Article 1 of the Act and its Enforcement (2002) prescribes that hiring gifted and talented teachers can be approved based on the “Elementary and Secondary Education Act”, Act 21, which states that schools or institutes can hire gifted and talented education teachers and be approved by the presidential decree. In Act 25, teachers in gifted schools and classes are the ones certified for elementary
or secondary education institutes according to “Elementary and Secondary Education Act” and take the in-service training programs approved by the Minister of Education or the Superintendent of education.

Recently, after they revised “The Gifted and Talented Education Promotion Act” not only can the teacher with a teaching certification teach gifted and talented students but someone who has expertise with gifted and talented education can also work in gifted and talented education. This meant that gifted education institutes focused more on the teachers’ professional forte or the knowledge or attitude related to educating the gifted and talented students rather than their basic personality and characteristics as a teacher (Lee, 2009).

Below are the requirements for the teacher and the instructor in gifted classes, schools, and institutes based on the Act 25. 1. These are the requirements for teachers of a gifted class or/at a gifted school according to the Act 12, Article 1 (Table 1). 2. Even though a person who does not meet the requirement in Act 21, Article 1, they can be a teacher or an part time instructor if he/she meets the requirement from the other Acts as follows: Doctoral or Master’s degree with 5 years of work experience in gifted and talented education and other related fields; or Special abilities in the gifted and talented education field and approved by the school authority. 3. Gifted schools should hire the person who has a teacher certificate. 4. Teachers, according to the Act 2, can only work at gifted schools, and she/he cannot work at other institutes.

Table 1. Requirement for the Teachers in Gifted Class and/or School

<table>
<thead>
<tr>
<th>Institutes</th>
<th>Position</th>
<th>Requirements for the position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialized gifted schools</td>
<td>Principal</td>
<td>Secondary school principal certification&lt;br&gt; In-service training approved by the Minister of Education or Superintendent of education</td>
</tr>
<tr>
<td></td>
<td>Vice Principal</td>
<td>Secondary school vice principal certification&lt;br&gt; In-service training approved by the Minister of Education or Superintendent of education</td>
</tr>
<tr>
<td></td>
<td>Teachers</td>
<td>Secondary school teacher certification&lt;br&gt; In-service training approved by the Minister of Education or Superintendent of education</td>
</tr>
<tr>
<td></td>
<td>Counselor</td>
<td>Secondary school counselor certification&lt;br&gt; In-service training approved by the Minister of education or superintendent of education</td>
</tr>
<tr>
<td>Gifted classes</td>
<td>Teachers</td>
<td>Elementary or secondary school teacher certification&lt;br&gt; In-service training approved by the minister of education or superintendent of education</td>
</tr>
<tr>
<td></td>
<td>Counselor</td>
<td>Elementary or secondary school counsellor certification&lt;br&gt; In-service training approved by the minister of education or superintendent of education</td>
</tr>
<tr>
<td></td>
<td>Librarian</td>
<td>Elementary or secondary librarian certification&lt;br&gt; In-service training programs approved by the minister of education or superintendent of education</td>
</tr>
<tr>
<td></td>
<td>Part Time teacher or instructor</td>
<td>· Elementary or secondary teacher certification&lt;br&gt; · Master’s degree or above&lt;br&gt; · College degree or above with gifted and talented education related area</td>
</tr>
</tbody>
</table>

Since continuous in-service training is needed to maintain and improve teachers’ qualifications and quality of gifted education, the Minister of Education or Superintendents approves applications of in-service training programs at the teachers’ colleges or teacher education institutes. The instructor or the part time teacher in gifted schools or classes should take the in-service training within one year after he/she started teaching gifted students. Superintendents require the newly assigned gifted education teachers to complete a 60 hour or above in-service training on gifted education to assure teachers’ quality based on “Elementary and Secondary Education Act”, Act 2. Table 2 shows various types of in-service training for gifted education teachers provided by the Ministry or school districts.

Table 2. Requirements for in-service Training Program on Gifted Education

<table>
<thead>
<tr>
<th>Program type</th>
<th>Hours</th>
<th>Course Contents</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic program</td>
<td>60h</td>
<td>Concept of giftedness and gifted education, assessment tools, and evaluation of gift program.</td>
<td>Office of Education, University, Institute for Gifted Education</td>
</tr>
<tr>
<td>Advanced program</td>
<td>120h</td>
<td>Domain-specific concept of giftedness and education, assessment tools, advanced contents of specific domain, various teaching-learning strategies, evaluation methods, and developing gifted education programs.</td>
<td>Office of Education, Institute for Gifted Education</td>
</tr>
<tr>
<td>Specialized programs</td>
<td>90h</td>
<td>Policy of gifted education, developing curriculum for gifted education, and developing educational resources for gifted education students.</td>
<td>Institute for Gifted Education</td>
</tr>
<tr>
<td>Leadership program</td>
<td>30h</td>
<td>Gifted education policies, student selection, teacher education, and evaluation of gifted education program.</td>
<td>Office of Education, University, Institute for Gifted Education</td>
</tr>
</tbody>
</table>

In sum, the qualifications of teachers and the requirements of in-service training are regulated at the national level by law. Above all, it is necessary that teachers are required to have a teaching certificate for either elementary or secondary school approved by Elementary and Secondary Education Act. However, the government allows flexibility to hire persons who have experience in related fields of gifted and talented education or a Master’s degree or above in education or in specific domains to participate in gifted education.

There is no formal undergraduate pre-service teacher education program, whereas recently there are a growing number of pre-service and in-service teacher education programs that are offered at the graduate schools. The central government and local education authorities are actively implementing various in-service training courses. Even though the Korean government does not directly regulate the contents and operating processes of teacher training programs, through the Gifted and Talented Education Promotion Act and its Enforcement, it, in reality, maintains the minimum level of quality and universality among diversified teacher training programs across the nation.
Accomplishments of Teacher Training Programs in Korea Last 10 Years

Korean undergraduate programs do not offer pre-service gifted teacher education programs in colleges and universities. Instead the Ministry of Education required teachers’ colleges or teacher education institutes to teach some gifted education content in teaching courses. From 2009, all students enrolling in a college of education or a teacher education institute should take ‘Understanding Special Education’ (two credit hours) which includes some gifted education content. Through this course, students may have an opportunity to understand basic concepts of gifted education.

On the other hand, in the case of graduate programs, Konkuk University started Master’s degree program at the graduate school of education in 1998. After that, Soonchunhyang University started a joint degree program in 2002, and Incheon University created one in 2003. Currently, 32 graduate schools are offering programs for gifted education major or a joint-ed/collaborated program. Choe (2014) analyzed the contents and characteristics of the curriculum of 32 graduate programs. Each program offers similar core courses like ‘General Understanding of Gifted Education’, ‘Understanding the Identification Process’, ‘Creativity’, ‘Development of Gifted Education and the Program of Gifted Education’, ‘Gifted Education Research or Seminar.’ After completing basic and core courses, graduate students are required to conduct research studies in the school field.

There has been a dramatic increase in the number of gifted education institutes and teachers in gifted education after the revised Enforcement of the Gifted and Talented Education Promotion Act was released in April 2012. To meet the increased needs of gifted education, in the 3rd Comprehensive Development Plan for Gifted Education (2013-2017), the Korean government strongly stresses teacher education and in-service training. Teacher colleges and other teacher education institutes are going to invest in more gifted education courses, try to make new gifted education degree programs at the graduate level, and include at least two credit hours of gifted education in the pre-service training program and more in in-service one.

According to this plan, the Korean government is expecting 9,000 in-service trainees by 2017 through the differentiated in-service teacher training programs: prospective teachers, novice teachers, basic program, advanced program, specialized program, and the leadership programs for administrators.

The number of gifted students has been increased every year with 121,433 gifted students in 2013. The number of gifted students in 2013 is 6 times larger than the number of gifted students in 2003. The number of teachers taking in-service training programs also has increased continuously every year. In 2013, the number of teachers trained is approximately 37,966. Therefore, the ratio between teachers and students is about 1:4.
It will be more helpful, if Korea can resolve the challenges at the early stage of system development to provide gifted education teachers with the goal of having increased in-service training programs for the gifted students and education. Here is the comparison of the increasing numbers of each year (Table 3).

**Table 3. Numbers of Gifted Students and the Teachers Who Completed the in Service-training**

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>21,616</td>
<td>31,100</td>
<td>46,006</td>
<td>73,865</td>
<td>111,818</td>
<td>121,433</td>
</tr>
<tr>
<td>Teachers in service trained</td>
<td>2,368</td>
<td>2,763</td>
<td>2,698</td>
<td>3,035</td>
<td>4,645</td>
<td>6,630</td>
</tr>
<tr>
<td>Accumulated number of trained teachers</td>
<td>2,368</td>
<td>5,131</td>
<td>10,348</td>
<td>16,163</td>
<td>25,336</td>
<td>37,966</td>
</tr>
</tbody>
</table>


Meanwhile, Korea has 261 in-service training courses (Table 4). Among them, basic program occupied 61.3% (160), advanced program 12.6% (33), and leadership program for administrators 8.8% (23). A total of 21,002 teachers have participated in, at least, one of the in-service training programs. Among them, 13,928 teachers have taken the basic program, 3,506 teachers joined advanced ones, and 1,208 administrators have taken more than one program.

**Table 4. Kinds of In-Service Training Programs and the Number of Participants**

<table>
<thead>
<tr>
<th>Level</th>
<th>Basic</th>
<th>Advanced</th>
<th>Specialized</th>
<th>Administrators</th>
<th>On demand</th>
<th>Overseas</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>13,928</td>
<td>3,506</td>
<td>1,208</td>
<td>301</td>
<td>859</td>
<td>601</td>
<td>599</td>
<td>21,002</td>
</tr>
<tr>
<td>Courses (%)</td>
<td>(61.3)</td>
<td>(12.6)</td>
<td>(8.8)</td>
<td>(3.8)</td>
<td>(0.8)</td>
<td>(4.6)</td>
<td>(8.1)</td>
<td>(100%)</td>
</tr>
</tbody>
</table>


The teacher training programs in gifted education implemented over last 10 years have been recognized as having a positive impact on an increasing number of teachers, a diversified curriculum, and a high level of satisfaction with the programs. However, for the continuous and sustainable growth and development of gifted education, it is crucial to train qualified teachers of gifted education by providing various in-service training program opportunities.

**Toward Improving Training Programs for Gifted Education in Korea: Recommendations for Sustainable Progress**

For future development of teacher education programs in gifted and talented education, this paper has several suggestions as follows;

First, professional development system for gifted education should be strengthened at undergraduate level and above. In-service training programs for the certification of domain-specified teachers of gifted education should be developed within the context of the national...
teacher training system. In addition to expanding in-service training programs, there is a need for instituting an undergraduate teacher certification program in gifted education. Pre-service teachers should be able to take a various undergraduate courses such as language art, math, science, and computer (information) science, and further complete domain-specific graduate courses in gifted education to enable them to serve in the gifted education field.

Second, there is a need of differentiated in-service training courses focused on the learning challenges of teachers who have already successfully completed the basic level and have strong motivation to strengthen their professional competencies. Teachers serving a certain amount of time in gifted education institutes after completing the basic level program should have the chance to engage in advanced training programs such as overseas training and short-term dispatch training etc. Additional training will allow basic level gifted education teachers to acquire more in-depth and enriched knowledge and skills needed to become a capable and skillful teacher in gifted education. Moreover, they will be able to act as a gifted education coordinator or practical expertise.

Third, the scope or range of gifted education should be expanded from existing math and science centered programs to other domains like arts, athletics, and even leadership. Until now, math and science centered teacher training programs have been the majority of in-service training program topics in gifted education. This is because, in the initial stage, gifted education in Korea was mainly focused on math and science education of elementary and secondary gifted students. In order to create a balance among in-service training programs, more efforts are needed to develop training programs in diverse domains including arts, languages, invention, computer science and interdisciplinary programs are needed.

Fourth, exposure to the basic gifted education course should be expanded to regular education teachers. Nurturing creativity of students is perceived as an essential task in Korean education. For this, teachers should be prepared to teach creative thinking and problem solving. In order to equip them with competences for nurturing creativity, the minimum of 30 hour classes in in-service training program for gifted education should be provided to most of teachers in regular schools.

Fifth, in addition to on-site teacher education, which is a common mode of training, efforts to develop appropriate online training course should be made to respond to the growing number of teachers who have an interest in gifted education and their diverse learning needs. For the future, it is clearly evident that online courses or video conference systems using the Web or Apps should be actively utilized. By taking advantage of fast-developing Information Technology (IT), teachers of gifted students would be able to acquire a basic understanding about gifted education. Furthermore, through vivid or dynamic interactions in online environments, teachers will be able to access much more specialized or enriched learning experiences in each domain of gifted education.
The last, for the sustainable progress of in-service training programs in gifted education, nation-wide standards of professions, curriculum and assessment in gifted education should be established and continuously disseminated. In the past, there was a similar attempt by the National Research Center for the Gifted and Talented Education at KEDI. However, it was not widely adopted as a common standard for teacher training and curriculum implementation. To this point, establishing a nation-wide common standard system is ideal for promoting the Korean gifted education as a whole. Reflecting on the educational investment to make advances of Korean gifted education last 10 years, clarifying national core standards will be one of the most important tasks to practice more appropriate gifted education.

**Note:** This work was supported by Kyungnam University Foundation Grant, 2012

**References**


Choe, H. S. (2014). *Quantitative and qualitative outcome analyses of last 10 years of gifted education in Korea.* Seoul: Korean Foundation for the Advancement of Science and Creativity.


Abstract
The purpose of the study is to explore the content and significance of the Gifted Education Database (GED), a Korean information service system for gifted education. The GED functions as: 1) an information management system and 2) a teacher recommendation system. The information management system collects and provides data in terms of statistics on institutions, teachers, and students, teaching and learning materials, and notifications. The teacher recommendation system helps teachers to recommend students through an on-line system. It also assists in the student selection process by providing users a step-by-step interface specifically designed for each stage. Overall, as a comprehensive collective information system in gifted education, the GED supports policy making on providing appropriate educational experiences for the outstanding individuals, particularly those with disadvantaged socio-cultural background by providing reliable data at the national level. At the user level, it increases data accessibility and provides customized services for people concerned with gifted education. As a result, the GED connects information and people and is a driving force for national growth.

Key Words: gifted education, database for gifted, Korean Information System

Öz
Bu çalışmanın amacı Kore’de üstün yetenekliler eğitimi bilgi servisi olan Üstün Yetenekliler Veri Tabanını (GED) açıklayarak önemini ortaya koymaktır. GED’in iki işlevi vardır; 1) bilgi yönetim sistemi ve 2) öğretmen önerisi sistem. Bilgi yönetim sistemi olarak kurumlar, öğretmenler, öğrenciler, öğrenme ve öğretme materyalleri hakkında bilgileri ve duyurular toplanarak istatistikler halinde sunulur. Öğrettyen önerisi sistemi, online bir sistemle öğretmenlerin öğrencileri aday göstermelerine yardımcı olur. Ayrıca sistem, öğrenci seçme sürecinde kullanıcılarına her aşama için özel olarak tasarlanmış bir ara-yüz ile adım adım yardımcı olmaktadır. Üstün yeteneklilerin eğitimi ile ilgili toplanmış kapsamlı bilgi sistemi olarak GED, üst düzey öğrencilerle özellikle de dezavantajlı sosyo-kültürel tabakadaki bireylerle uygun eğitim tecrübeler sunacak politikaların üretilmesine destek olarak güvencilir ulusal verileri sağlar. Kullanıcı seviyesinde, üstün yeteneklilerin eğitimi ve öğretimini ile ilgili kişilerin veri ulaşımını artırmak için onlara uyanlanmış servisler sunar. Sonuç olarak GED bilgi ve insanlar arasında bağlantılı sağlayan ve ulusal büyümeyin itici güçlerinden birisi olarak değerlendirilebilir.

Anahtar Sözcükler: üstün yetenekliler eğitimi, üstün yetenekliler veri tabanı, Kore bilgi sistemi

Introduction

With the enactment of the Gifted and Talented Education Promotion Act (GTEPA) in 2000, gifted education continuously develops in Korea. In particular, with the qualitative and quantitative expansion of gifted education in the past 15 years, the current number of gifted
education students in elementary, middle, and high school totals are approximately 120,000 a year. Consequently, operational aspects of gifted education institutions, such as the security of teaching and learning materials, teachers in charge, and management of gifted education subjects have rapidly increased. However, most data related to gifted education are managed by each institution in the form of document files or by hand, so it is not easy to collect and utilize this information. As a result, there is a need to manage this information with a policy consideration.

For efficient human resource development and utilization, it is essential to collect scientific and reliable information. In addition, a comprehensive information system is required to promote effective gifted education, implement efficient relevant research, and manage various materials. Accordingly, the construction of the Gifted Education Database (GED (https://ged.kedi.re.kr/)) is based on this social interest and need.

The construction and management of the GED was stipulated in the revised GEPTA in 2008, and in accordance with its implementing ordinances, the Ministry of Education, Science, and Technology; 16 municipal and provincial offices of education; and the Korean Educational Development Institute (KEDI) collaborated for three years and developed the GED. The GED has been collecting information on gifted education since 2009. Up until now, the GED carries out a support function for educational sites while meeting the information demands with advanced system development. In this paper, major functions and the content of the GED system are reviewed and the significance of the GED will be discussed.

**Primary Functions of the GED**

The GED collects and manages information on gifted education in Korea. Based on the collected data, it provides indicators as well as related statistics on gifted education. In addition, the GED helps gifted educational institutions select gifted education students. GED has three main parts: ‘Registration and Management’ and ‘Selection of Gifted Education Students’, and ‘Information on Gifted Education’ ‘Registration and Management’ is used to collect and manage gifted education statistics and ‘Selection of Gifted Education Students’ is used to recommend students for gifted education. ‘Information on Gifted Education’ is composed of three sections: A brief introduction to the GED and Q&A; statistics, gifted education institutions, gifted education students’ selection, and a variety of information; and information for gifted education faculty and students. The GED introduction and basic statistical data can be accessed freely. However, to access the rest of the data, approval to be a member is required from the National Research Center for Gifted and Talented Education.

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1 The Ministry was renamed Ministry of Education in 2013.
2 The number of municipal and provincial offices of education in Korea increased from 16 to 17 in 2012 when Sejong Special Autonomic City was established.

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Comprehensive Management of Information on Gifted Education

The GED presents vast information related to gifted education in four categories: Statistics, record, data, and notification.

Statistics. Statistics section provides overall picture of the status of gifted education by gathering comprehensive information related to gifted education. The GED is structured to calculate integrated statistics that is hard with the simple aggregation of data managed by each institution. Basic statistics are presented and detailed information is found in the statistics annual report.

In 2014, the GED conducted a survey to 17 Offices of Education (municipal and provincial offices of education and regional education supporting agencies) and educational institutions to collect data on gifted education across the country. The following is a brief description of the overall input and verification process that officers of gifted education institutions and GED staff (NRCGTE, KEDI) go through in the GED system.

Table 1. Example of Input Process of GED Statistics in 2014

<table>
<thead>
<tr>
<th>Process of data input</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data input period</td>
<td>Aug. 23, 2014 (Sat) ~ Aug. 30 (Sat)</td>
</tr>
<tr>
<td></td>
<td>* Additional input period: Aug. 26, 2014 (Sat) ~ Sep. 3 (Wed)</td>
</tr>
<tr>
<td>Input process</td>
<td>- After linking to the GED education for the gifted DB, log in to the institutional account granted, and then input the statistics</td>
</tr>
<tr>
<td></td>
<td>- Organization for 6 phases in institution information ► status of operation ► operation data ► class information ► student information ► faculty information ► input</td>
</tr>
<tr>
<td>Data verification</td>
<td>- 1st examination: Each institution examines details of every input data.</td>
</tr>
<tr>
<td></td>
<td>- 2nd examination: Each municipal and provincial office of education examines every data from institutions in the area.</td>
</tr>
<tr>
<td></td>
<td>- 3rd examination: GED staff examines every data from each municipal and provincial office of education.</td>
</tr>
<tr>
<td></td>
<td>- 4th examination: Each municipal and provincial office of education reexamines every data from GED staff and makes final confirmation</td>
</tr>
</tbody>
</table>

Basic statistics produced through the above process is shown in Table 2.

Table 2. Statistics on Institutions of Gifted Education in Korea (2014)

<table>
<thead>
<tr>
<th>Segment</th>
<th>Gifted School/ Science high school</th>
<th>Gifted Education Center</th>
<th>Gifted Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of educational institutions</td>
<td>26</td>
<td>278</td>
<td>71</td>
<td>2,545</td>
</tr>
<tr>
<td>Number of gifted education students</td>
<td>5,695</td>
<td>32,094</td>
<td>8,928</td>
<td>71,232</td>
</tr>
<tr>
<td>Ratio of gifted education students</td>
<td>4.83%</td>
<td>27.21%</td>
<td>7.57%</td>
<td>60.39%</td>
</tr>
</tbody>
</table>

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Since 2012, the above basic statistics and the ‘Statistical Yearbook of Gifted Education’ is published at the end of each year. This report presents detailed statistics and information on gifted education. Its English version is published next year.

**Record.** There is a larger number of gifted education students in Korea in the lower grades than in the higher grades, forming a pyramid shaped development system. Therefore, the record management on how gifted education students go through their educational and career path is important. This data serves a solid foundation for establishing systematic and strategic policies on gifted education.

The GED collects and manages the records of gifted education students, including courses completed in particular education programs and awards in competitions. However, information is voluntarily inputted so only approximately 80% of the information is collected each year. In addition, some information is omitted or not detailed enough to serve the initial purpose of tracking the educational and career paths of individual students.

Furthermore, the revised Individual Information Protection Act in 2013 restricts the collection of private information. With the minimization of the collection of individual information in the GED, efforts to improve the record management system turn to determining the core status of educational advancement and career paths and increasing safety to prevent information disclosure. The rearrangement of this data management system has been planned and is underway. Currently, data about gifted education history and choices of college major of gifted school students is collected in the system.

**GED library.** The GED provides outstanding and verified teaching and learning materials for gifted education through the GED library, which is equipped with a nationwide data sharing system to improve the quality of the educational field.

The GED library is structured to provide data through an advanced search on applicable data related to gifted education. Following the classification system, data may be searched by policy, research, teaching and learning, institution operation, student selection, faculty training, parents, and others. The data search is available by region, year, author, keyword, data source, and so forth.

In order to facilitate structuring of the GED library, high quality data needs to be uploaded in sufficient volume. The teaching and learning data often do not specify their source, so
there is frequent revision and supplementation of specific parts of existing data that need a thorough review related to copyrights. To assist in collecting data efficiently, the GED includes an online guide with cases of copyright infringement and precautions related to copyrights.

**Notification system: Allimy.** To decrease the gap in gifted education opportunities caused by discrepancies in SES, private tutoring experiences, and the socio-cultural background of high potential students, the GED structured the information notification system for gifted education institutions with the name ‘Allimy’ (which means notifier) at the end of 2013.

Allimy for gifted education institutions is a system that provides all information of each institution, including student selection process, curriculum/program, program regulation, etc., available on gifted education throughout the country in full view. It is expected to improve educators’ understanding of and access to gifted education.

**Teacher Recommendation Selection System (TRSS) for Student Selection**

The need for the introduction of the TRSS for student selection was expressed in the 2nd National Comprehensive Plan for the Promotion of Gifted Education in 2008. Since 2009, the Ministry of Education, Science, and Technology promotes the teacher recommendation system nationally to replace the existing selection system of paper and pencil tests. However, the heavy burden on teachers resulting from complicated screening steps as well as reliability and validity issues are needed to be addressed. To alleviate these issues, KEDI constructed an online TRSS as a part of the GED in 2009. It allows teachers to recommend students through online system efficiently and conveniently.

**Online provision of various checklists.** The GED TRSS provides various checklists developed by KEDI and related experts. The checklists are used by students, parents, and teachers to enhance their understanding of the recommendation process and its results through their participation.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Kinds of checklists</th>
</tr>
</thead>
<tbody>
<tr>
<td>For students</td>
<td>KEDI leadership characteristics checklists (full version, simplified version, elementary &amp; middle level), KEDI creative personality inventory, student self-report</td>
</tr>
<tr>
<td>For parents</td>
<td>Parent’s application form, KEDI-Gerric checklists for parents</td>
</tr>
<tr>
<td>For teachers</td>
<td>KEDI gifted behavioral characteristics checklist, KEDI leadership characteristics checklists (simplified and full versions), KEDI creative personality test, Science aptitude checklist (elementary and middle), Mathematics aptitude checklist (elementary and middle), Information science aptitude checklist (elementary and middle)</td>
</tr>
</tbody>
</table>
These checklist and reports are stored online and revised until their final submission. Therefore, it is possible for teachers to begin observing and continue updating records of their students’ gifted behaviors throughout the year.

**Online student selection system for gifted education.** Even though the Ministry of Education and Human Resources encourages gifted education institutions to utilize the GED online student selection system as much as possible, not all gifted education institutions use the online student selection system yet.

The GED student selection system supports the process of selecting gifted education students from teacher observation/recommendation, screening at each school, and selection into gifted education institutions. The GED online system establishes a more efficient selection system and enhanced user convenience.

Information on student selection period, criteria, and procedures at each gifted education institution can be searched through a search engine. This search system allows any student, parent, or teacher to access information on selection of gifted education students throughout the nation.

Application: Students and parents apply by accessing the ‘Application’ menu. Students and parents complete forms such as a self-report, parental application, checklists on gifted behaviors, and results of tests on student leadership characteristics, student creative personality, and student interest for self-recommendation. Recommendations are made by homeroom teachers, subject teachers, gifted education teachers, and third parties who know the student’s characteristics well by using checklists provided by the GED and other materials, including data written by students online.

Selection: School recommendation committees at each school access the ‘Selection’ menu for the school recommendation committee and review teachers’ submitted recommendations. Next, the Screening Selection Committee at each gifted education institution use the ‘Selection’ menu to input final selection results. Information about selected students is linked to the GED status information on gifted education students.

The GED TRSS provides a step-by-step interface so users can understand and conduct each screening procedure easily. In addition, powerful selection management functions are provided for utilization of evaluation factors and a variety of screening steps responding to characteristics of each institution.

**Significance of the GED**

The GED can help stakeholders manage or search a wide range of information on gifted education. It also provides various users with customized services. In addition, it is possible to carry out student selection efficiently since all people involved in the selection process com-
pile, submit, and review the documents through the online TRSS. The following describes the significance of the GED in detail.

**Availability of the GED at the National Level**

**E-management of gifted education records.** Since systematic management of information on gifted education has not been done since the 1980’s, it is difficult to locate information on Korean gifted education. To put into place national plans for the continuous development of gifted education, it is essential that information related to gifted education in terms of when, where, by whom, what, and how gifted education has been implemented be compiled and managed systematically.

For Korean general education, the National Education Information System (NEIS) records and manages information on general education, and it is expected that the GED functions similarly to the NEIS in gifted education. In this respect, the construction of the GED is significant in that it contributes to long-term and comprehensive e-management of gifted education records by standardizing gifted education information created at each gifted education institution, city, or province and by establishing a national-level management system for individuals to the Ministry of Education.

**Reducing the gap in gifted education opportunities.** While private tutoring and private education businesses are prevalent, recognition and selection of gifted and talented students from disadvantaged families is a serious issue in Korea in accordance with Clause 1, Article 1 of GTEPA. In big cities, affluent and motivated parents maneuver the information dissemination routes to access detailed information on criteria, instruments, and processes of student selection. In remote areas, information related to gifted education reach parents only if school teachers are diligent enough to disseminate information to them. This information gap on gifted education hinders the national goal of gifted education, which is to recognize the gifted and talented and to actualize their potential to the maximum, regardless of their environmental limits.

Fortunately, based on fast and inexpensive Korean broadband internet, the GED TRSS easily connects most families and individuals to gifted education information online. Since the GED TRSS allows parents to access detailed selection information and educational courses suitable for their child, time and cost required to obtain critical information are greatly reduced. In addition, parents can draft and store records of their children’s giftedness and write web documents required for the selection process through the GED. The stored data are important materials for the selection of gifted education students, such as teacher recommendations, that contribute to the discovery of hidden talents and to a fair selection process. In addition, the ‘Allimy system for gifted education institution’ allows general public to access to information on gifted education.
Availability of the GED: At a User Level

The availability of the GED is presented more specifically by a comparison of users’ convenience before and after construction of the GED, as shown in Table 5.

Table 5. Data Access and Management Before and After the GED

<table>
<thead>
<tr>
<th>Users</th>
<th>Function</th>
<th>Before the GED</th>
<th>After the GED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students and parents</td>
<td>Obtain information on student selection at gifted education institutions</td>
<td>Through community of the private institute. The validity of information is not guaranteed.</td>
<td>Through a national-level system. The validity of information is guaranteed.</td>
</tr>
<tr>
<td></td>
<td>Apply to a gifted education institution</td>
<td>Documented and submitted offline</td>
<td>Documented and submitted offline</td>
</tr>
<tr>
<td>Gifted Education Teachers</td>
<td>Compile education courses and teaching/learning materials</td>
<td>Personally secured and managed data created by an individual teacher or gifted education institution</td>
<td>Systematically compiled comprehensive information for using and sharing</td>
</tr>
<tr>
<td></td>
<td>Recognize students' characteristics</td>
<td>Personal interview and survey review of students' annual records</td>
<td>Review of students' annual records</td>
</tr>
<tr>
<td></td>
<td>Implement selection process</td>
<td>Offline paperwork</td>
<td>Online operation</td>
</tr>
<tr>
<td>Administrators and researchers</td>
<td>Monitor operating status</td>
<td>Collected and edited excel status reports created by individual gifted education institution</td>
<td>Real-time views through a statistical system</td>
</tr>
<tr>
<td></td>
<td>Share specific information</td>
<td>Information obtained by personal efforts</td>
<td>Information acquisition through a shared network</td>
</tr>
</tbody>
</table>

Gifted education students and their parents. Above all, it is meaningful that the GED encourages prospective gifted education students to draft and manage information on their gifted education experiences every year. In the GED, gifted students’ educational information is stored annually, and it is possible for students with high potential to experience monitoring and management of their educational records through the GED.

From the parents’ perspective, the greatest advantage of the GED is that they can choose educational institutions and courses for their children’s talent domain based on reliable information through the GED.

Gifted Education Teachers. Planning educational courses using good teaching and learning materials are important to ensure high quality gifted education. Gifted education teachers refer to operating plans of gifted education in Korea and view teaching and learning materials created by other institutions, cities, and provinces through the GED. In addition, gifted education teachers plan individualized education and guide students by accessing individual student records that are readily available through the GED. The work load caused by additional duties such as preparation and management of related documents for student recommendation and selection are greatly relieved.

Gifted Education Administrators and Researchers. The GED compiles and manipulates real-time information to create complex statistics based on basic data input man-
aged by each institution; discloses real-time gifted education statistics to the public; and provides policymakers, administrators, researchers, and experts with valuable analytical data. In addition, accumulation of long-term data will contribute to development of macroscopic and empirical policies on gifted education. Furthermore, information on research projects and technical reports as well as performance information is shared with administrative institutions, research institutes, and professionals to enhance gifted education research quality and collaboration among experts.

Conclusion

In this paper, it has been examined various features, merits, and significance of the GED, which is considered an overall information system on the gifted education. The GED not only provides officials concerned with gifted education at home and abroad with reliable and specific information, but also allows them to participate actively in the database construction and manage related information. In this regard, if the GED is managed and operated efficiently, the positive ripple effect on all areas of gifted education will be enormous. However, there still exist many issues to be solved to satisfy this expectation.

A database is just a chunk of information combined and stored systematically. To extract information from a database, process the information for users' convenience, and provide it to a user interface, a completely separate operation is required. The advantage of the current GED is that it can provide various functions required to maintain and manage the database. In the future, continuous improvement on the diverse data held by the GED will be needed so that data are easily available and conveniently useable for users.

In addition, since the GED has personal key information on numerous human resources, its security needs to be strengthened. This matter is related to the invasion of privacy due to personal information disclosure of the NEIS, considered as Korea’s typical educational administrative information system. This is already a social issue and has great implications for the GED. The GED needs to refrain from excessive collection of personal information and be very strict in selecting key information required to help understand gifted education correctly and enhance its quality. In particular, since the GED is accessible to overseas users, security measures will need to be enhanced so that users in foreign countries can utilize the system through a safe security system.

In terms of information input, the GED is operated by an autonomous system without coercion since methods and procedures of information collection are based on the voluntary participation of users. Aside from an accurate understanding about the system and its usefulness, the utilization level of the system is low. Accordingly, consistent improvements that consider users’ convenience are top priority. Publicizing the system and targeting a wide variety of users are also required so that those concerned with gifted education can have a correct understanding of the GED and utilize it efficiently.
To solve pending issues and provide superior services, the security of stable financial resources to operate the GED is required. The GED is operated through cooperative links with the Ministry of Education, 17 municipal and provincial offices of education, and KEDI, but the financial resources are somewhat fluid and unstable. In the future, to ensure stable financial resources, government funding should be provided.

The GED is considered to be a system with infinite potential. In this sense, it is expected that the GED will develop into a system integrating and connecting information on gifted education laterally and longitudinally beyond time and space, based on the interest and support of all persons concerned with gifted education.

References

GED website: https://ged.kedi.re.kr/
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<th>Title</th>
<th>Authors</th>
<th>Page</th>
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<td>Yaratıcılık, Kore Üstün Yetenekliler Eğitimi: Alana-Özgü Gelişimde Odaklanma</td>
<td>3</td>
</tr>
<tr>
<td>Domain-Specific Identification of Talented Students in the Republic of Korea</td>
<td>Kore Cumhuriyeti’nde Üstün Yetenekli Öğrencilerin Alana Özgü Tanılanması</td>
<td>24</td>
</tr>
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<td>Critical Reflection on Teacher Training Programs in Korean Gifted and Talented Education</td>
<td>Kore Üstün Yetenekliler Eğitiminin Öğretmen Yetiştirme Programlarının Kritik Yansımları</td>
<td>35</td>
</tr>
<tr>
<td>Gifted Education Database (GED): Information Management and Online Teacher Recommendation System</td>
<td>Yetenekliler Eğitimi Veri Bankası: Bilgi Yönetimi ve Online Öğretmen Değerlendirme Sistemi</td>
<td>44</td>
</tr>
</tbody>
</table>