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Educational assessment in the Republic of Korea: lights and shadows of high-stake exam-based education system

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\cite{article}

Introduction

Koreans have traditionally placed great importance on education both as a means for personal self-cultivation and as a way of social advancement. The Republic of Korea (Korea, hereafter) has a centuries-old tradition in which formal learning and scholarship has played a central role in society. This tradition, usually associated with Confucian philosophy, entered Korea from China more than fifteen centuries ago. With the adoption of Confucian ideas, individuals of merit were selected through highly competitive regional and national examinations, which served as the means of selection for prestigious government positions. The examination system acted as the main selection mechanism for the limited number of government posts and consequently formal education was largely organised around preparation for the exams. Elite families, at least, devoted a great deal of energy and expense on education and examination preparation. In fact, educational success benefited the individual, family and the lineage, and it became the primary avenue to success in Korea. Even today, this broad-based nature of the public demand for schooling facilitated the state in its goals of establishing a universal basic education. This phenomenon has been reincarnated as Koreans’ zeal for education, often referred to as ‘education fever’, which is one of the most striking features in Korean society (Lee, \textit{2006}).

This paper will explore the assessment system of Korea, specifically the ways in which the high-stake exam, College Scholastic Ability Test (CSAT, hereafter) has a
strong washback effect on the entire education system, including teaching and learning in the classroom and students’ perceived motivations for learning. Korean students’ high performance with low index of affective characteristics in the international assessments, such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS), is deemed to be primarily a washback effect of this high-stake exam, and on top of that, it seems unarguable that heavy reliance on one standardised test like the CSAT causes deep impact on both education and the entire society. This paper will also discuss the ways to improve Korea’s assessment system, by advocating for an educational reform of the assessment system.

A historical perspective of ‘testocracy’ tradition in Korean education

Korea’s ‘testocracy’ in education has deep historical roots. This tradition, usually associated with Confucian philosophy, originated from China more than fifteen centuries ago. Korea’s traditional respect for knowledge and deep belief in continuous, lifelong human development whose emphasis on learning derives largely from the age-old Confucian belief that man is perfectible through education and that only the most learned should govern the country and society. For more than a millennium, major positions of power were allocated by civil service examinations and thus success in the examinations determined a family’s fame and fortune.

After the unification of the peninsula in the seventh century, Confucian philosophy emerged as the central governance ideology of the state. The civil service examination system (Gwago in Korean) was adopted in 958 in order to recruit men into government (Baek et al., 2011). Subsequently, throughout the Goryeo period (918–1392), a concern for education grew as a means of preparing men for the examinations and promoting Confucian learning and moral training. Under the Joseon dynasty (1392–1910), Confucian ideology was reinforced in the form referred to as Neo-Confucianism, which was adopted as the state orthodoxy and relegated other belief systems to secondary positions (Lew, 2000), and the civil service examination system served as virtually the only means of selection for high government officials. Therefore, the primary functions of the Joseon educational institutions were to prepare student candidates to become Gwago examination takers. Simply put, the formal education was largely organised around examination preparation. As a result of the Confucian ideology and the use of examinations as a social selection device, pre-modern Korea was a society in which formal learning was a major preoccupation. The first Western account of Korea was written in the seventeenth century by a shipwrecked Dutch merchant Hendrik Hamel, who was forcefully detained by the Joseon Government and spent 13 years in the country. Hamel wrote an account of the shipwreck and a description of Korea. On Korean education, he says:

The nobles and the free men take great care for the education of their children. They place their children under the direction of teachers to learn to read and write. The people of this country are very enthusiastic about [education] and the method they use is gentle and ingenious. Teachers offer their students the teaching of earlier scholars and constantly cite their example of those who attained fame through high scholarship. The boys devote their time to study day and night. (Choe, 1987, p. 98)

Towards the late nineteenth century, Korea had begun the long and painful process of confronting the challenge of foreign powers. The Joseon dynasty began to
implement the beginnings of a Western-style educational system. A number of schools with modern curricula had been established by missionaries, and the foundations for a modern school system had been set up by the government (Sorensen, 1994). These early attempts to modernise the educational system were truncated by Japanese rule between 1910 and 1945. The colonial regime sequentially developed a modern educational system with a concentration on basic education followed by secondary and tertiary education. However, Japanese colonial regime restricted Koreans’ access to upper levels of schooling.

After independence from Japan in 1945, frustrated Koreans’ educational aspirations resulted in pent-up demand. During the Korean war of 1950–53, many of the old social hierarchies crumbled, convincing people they could succeed by their own efforts. Many schools operated two and three shifts a day in crowded urban areas because school building could not keep up with the numbers. From 1953 on, the government implemented comprehensive entrance exams for middle and high school to make sure that those who received the limited secondary education available were the most qualified. Although the middle school entrance examination was abolished after 1969 as part of a government plan to make education at that level universal, entrance examinations remain for high schools and colleges to this day. Perhaps at the pinnacle of Korean education today is CSAT (Suneung in Korean).

As briefly aforementioned, this exam-based tradition has deep historical roots and still remains as the form of university entrance examination and civil service examination to this day. Even nowadays, while education is recognised as an end in itself, in practice, it is generally seen as a means of social mobility and status selection.

Education in Korea today

Education system of Korea

The Korean education system operates on a 6–3–3–4 basis, with six years of primary schooling followed by three years of middle school, three years of high school and four years of undergraduate education. The first nine years of schooling are compulsory education for children between the ages of six and 15. The single track has been characteristic of the Korean education system, which maintains a single ladder system of schooling in order to ensure that every citizen can receive primary, secondary and tertiary education. Although preschool education is not yet compulsory, its importance has been increasingly recognised in recent years. Preschool education institutions in Korea are kindergartens and childcare centres, and approximately 44% of children are enrolled in these kindergartens (Korean Educational Statistics Service, 2013). Elementary schooling is compulsory with an enrolment rate of nearly 100%.

In recent years, there were several changes in middle and high schools. The major changes were: (1) the 2009 curriculum revision and educational policy that emphasises creative and character-building education; (2) the emphasis of school accountability for the results of the national-level achievement test given to students in the sixth grade of elementary school, third year of middle school and second year of high school; (3) the evaluation of schools and teachers; (4) diversification of middle and high schools and expansion of the right to select high schools; and (5)
changes in policies for entrance to universities from a single test to a multiple assessment portfolio.

**The value of education in Korea**

Like many other surrounding Asian countries, a successful educational record from ‘top’ universities are ‘highly valued’ in Korea (Finch, 2009, p. 95). A Korean student’s academic record has been one of the most valued requirements for them to enter a prestigious university and from there a successful career. With this ‘education fever’, Lee (2006, p. 2) explains that ‘self-cultivation through education’ has helped Korea greatly in its economic boom over the last few decades. The OECD report also highlights that Korea’s ‘strong zeal for education’ is one of the most essential driving forces of economic growth, where higher education is a key motivator for one’s power and success (Organisation for Economic Co-operation and Development [OECD], 1998, p. 27, 2010). As a result of this education fever, most Koreans are intensely involved with ‘aggravating competition and excessive private tutoring that reinforces the view of education as a social ladder to wealth and fame’ (OECD, 1998, p. 27). With this regard, 2.9% of the Korea’s GDP is spent on private education related to the university entrance exam (Dawson, 2010). Lee (2006, p. 11) also criticises that the excessive enthusiasm for education has created ‘an examination hell for college entrants’, since it is no exaggeration to state that one exam is the gatekeeper of one’s success in career and life. As a regulation plan, the Korean Government imposed a curfew policy that prohibits the private cram school classes after 10 pm, and the linkage policy of the Education Broadcasting System (EBS, hereafter) CSAT-preparing materials and CSAT has been adopted. Nevertheless, Korea has made a dramatic economic development in the twentieth century by human capital formation. It cannot be denied that the human capital formation is the only way to overcome scarce natural resources. At the same time, from the traditional perspective, Confucian culture in Korea, which emphasises academic knowledge (or admires a person with academic knowledge) is another reason why education is the most critical issue in Korea. The increasing rate of university entrants in Korea as shown in Table 1 serves as good empirical data for explaining the value of education in Korea.

<table>
<thead>
<tr>
<th>Year</th>
<th>High school graduates</th>
<th>College entrants</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>111,343</td>
<td>47,725</td>
<td>42.9</td>
</tr>
<tr>
<td>1977</td>
<td>217,015</td>
<td>66,206</td>
<td>30.5</td>
</tr>
<tr>
<td>1980</td>
<td>266,331</td>
<td>90,575</td>
<td>34.0</td>
</tr>
<tr>
<td>1986</td>
<td>386,965</td>
<td>207,441</td>
<td>53.6</td>
</tr>
<tr>
<td>1990</td>
<td>487,772</td>
<td>230,121</td>
<td>47.2</td>
</tr>
<tr>
<td>2005</td>
<td>569,272</td>
<td>417,835</td>
<td>73.4</td>
</tr>
<tr>
<td>2008</td>
<td>581,921</td>
<td>448,321</td>
<td>77.0</td>
</tr>
<tr>
<td>2011</td>
<td>648,468</td>
<td>469,961</td>
<td>72.5</td>
</tr>
<tr>
<td>2013</td>
<td>631,197</td>
<td>446,474</td>
<td>70.7</td>
</tr>
</tbody>
</table>

Academic achievement of Korean students in the international assessments

The OECD’s PISA aims to assess the extent to which students near the end of compulsory education have acquired the knowledge and skills, and to evaluate the quality, equity and efficiency of school systems in approximately 70 countries around the world (Mullis et al., 2005; OECD, 2007). TIMSS is another standardised international assessment that has measured trends in mathematics and science achievement at the fourth- and eighth-grade levels since 1995 (Martin, Mullis, & Foy, 2012a, 2012b). These international assessments provide data based on analysis on each participating country’s student’s performance and its relationship to the educational context, and suggest implications on achievement goals, standards for educational improvement, stimulating curriculum reform and improvement in teaching and learning (IEA, TIMSS, & PIRSL, 2013). Korea has been participating in OECD PISA and TIMSS assessments since 1995 and education policies have been introduced or modified based on the results of these standardised tests. For instance, PISA’s 2006 report on Korea’s low achievements in science is represented as a driving force for the Korean Government to reinforce science education (Figazzolo, 2009). The quantitative data driven from the PISA results were used as a valuable reference to support improvements in schools, especially on reforms aiming to enhance the quality of the Korean school system since 1995.

According to the OECD’s PISA 2012 report, Korea is reported as one of the highest performing OECD countries (see Table 2). Korean students showed astonishing results in terms of the level of achievement and performance in both reading literacy and mathematics, scoring one of the highest average scores among 34 OECD countries. Korean students scored 536 in reading literacy, and scored 554 in mathematics, both ranked 1st–2nd among all participating OECD countries (OECD, 2013). Compared with the past PISA results, the score of reading literacy level has increased by 29 points (2000), mathematics by 12 points (2003) and science by 16 points (2006), all statistically significant. What is also significant from the results is that the ratio of students below level 2 is much lower than the OECD average: 7.6% in reading literacy (OECD average, 18.0%), 9.1% in mathematics (OECD average, 23.0%) and 6.7% in science (OECD average, 17.8%) (OECD, 2013). Overall, the results of the recent international assessment show that Korean students’ performance significantly stands out from all other participating countries in similar context, in terms of geographical position and socio-economic situation (see Table 3).

According to the OECD’s ‘2013 Education at a Glance,’ Korea showed the highest ratio of finishing upper secondary education among the entire OECD countries since 2001 (OECD, 2013). In Korea, completing post-secondary education is now an essential condition to success, as skills required in the work field rely more on knowledge, and this is rapidly changing in the global economy (Lee, 2006). Following this trend, 98% of Koreans between the ages of 25 and 34 completed secondary education.

Table 2. PISA 2012 result: performance of Korean students.

<table>
<thead>
<tr>
<th>Mathematics</th>
<th>Reading literacy</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (Korea)</td>
<td>Mean (OECD) Rank</td>
<td>Mean (Korea)</td>
</tr>
<tr>
<td>554</td>
<td>494</td>
<td>1</td>
</tr>
<tr>
<td>536</td>
<td>496</td>
<td>1–2</td>
</tr>
<tr>
<td>538</td>
<td>501</td>
<td>2–4</td>
</tr>
</tbody>
</table>
education, and 64% of them completed post-secondary education. The results indicate that employment rates have increased as the completion rate of higher education increases, which is ultimately linked to the earnings of premiums of education. This strong belief in education among Koreans can be attributed in a large part to the importance of credentials in the current society. Diplomas are regarded frequently as the most important criterion for evaluation in employment, marriage and informal interpersonal relationships (OECD, 1998, p. 27).

TIMSS 2011 assessed the achievement of mathematics and science of students enrolled in grade 4 and grade 8 in 50 countries involving 600,000 students. Korea was reported as the top-performing country in mathematics alongside Singapore and Hong Kong Special Administrative Region at the fourth-grade level, and ranked top in the eighth-grade level with Singapore and Chinese Taipei. In the science achievement scores, Korea ranked top again at the fourth-grade level with Singapore, and ranked 3rd at the eighth-grade level after Singapore and Chinese Taipei (Foy, Arora, & Stanco, 2013; Martin et al., 2012b). Korean students, both in the fourth and eighth grade, have been ranked within the top five countries since TIMSS 1995, and the average score is steadily increasing, with the exception of the 2007 results. Although these results prove how Korean students’ level of academic performance is comparably higher than other countries in similar context, a series of studies are required to analyse the cause and factors behind this result in depth, and should make reference to the outcome to suggest implications for any possible educational reform. In fact, the overall analysis on the TIMSS 2011 results infer that individual student variance causes more impact on the achievement of mathematics and science, rather than the school variance in Korea (Foy et al., 2013).

History and features of the college admission system of Korea

Some argue that the frequent changes in the college admission system of South Korea are an indicator showing an unstable policy on the college entrance exam and at the same time are a sensitive policy open to public opinion (Kim, Kim, Park, & Sohn, 2007; Lee, 2013; Oh et al., 2008). It seems like Koreans have tried almost all of the existing college admissions system in the world since the country’s liberation from Japanese rule in 1945 (Joo, 2000). In this regard, stakeholders of the college admission policy have been expressing uninviting voices against these frequent policy changes.

The early method for college entrance was decided upon by the university. At that time, post-secondary institutions used their own tests to select students and the subjects and timing of the test were left to each school autonomously. In order to increase the general academic quality of university entrants, the government then introduced the very early version of the CSAT, a unified exam in addition to the exam administered by each post-secondary institution in 1954. However, this two-stage college admission system was abolished after only one year of its administration, and returned back to the one-stage exam administered by individual post-secondary institutions. In 1962, the government again introduced a unified exam, the Qualified Examination for College Admission, in which the Supreme Council for National Reconstruction administered from 1962 to 1963. However, the test was too difficult to pass, which led to a shortage of students for universities. Thus, the government again abolished the national exam and kept the individual post-secondary institution’s one-stage exam system from 1964 to 1968. Due to the
insufficient control on the number of university entrants, and on the test-preparation practices in high school classrooms, the government returned the college admission policy to the two-stage exam system in 1969, with a new national exam called the Preliminary College Entrance Examination (a multiple choice test). In the 1970s, college admission was greatly fuelled by the gap between the increased social demand for college education and the limited admission quotas in colleges. It was when the hierarchical order among universities was visibly established, and Korean’s zeal for entering more prestigious universities caused heavy competitions among students, which led reputable universities to require high grades to distinguish the students with their academic levels. As a solution to the heavy competition in the college admission system, the cut-off score policy was added to the existing system and the name of the test was changed to the College Scholastic Testing Assessment (CSTA) in 1982. The CSTA was an achievement test administered as a college entrance examination until 1992, which was meant to function as an indicator of students’ academic achievement level with a reduced number of test subjects from seventeen to nine. The current system of the CSAT was established in 1993, focusing on applicants’ aptitude for post-secondary education. With the introduction of the CSAT exam, the government allowed the individual post-secondary institutions to decide their own admissions criteria with the minimum score of students’ high school records (Korea Institute for Curriculum and Evaluation, 2005). Whether to utilise the CSAT scores as their admissions criteria or not was solely left to each institution, but most of them used the CSAT score and the students’ high school records as their admission criteria, a typical college admission system still used today. Since then, a few major revisions have been made in names of the sections, range of the question content, number of test items, duration of exam and scoring system. The main causes of these revisions were due to the changes of government policy, revision of the national curriculum, demands from post-secondary institutions and attempts to enhance the test construct (Korea Institute for Curriculum & Evaluation, 2005). In addition, every time the national curriculum was amended, there were several changes in the subjects and the number of questions.

The following table is the summary of Korea’s college admission system history.

**College Scholastic Ability Test**

*Korea’s high-stake university entrance exam*

The Korean SAT, CSAT, is designed to measure the students’ scholastic ability required for college education. The CSAT has been developed and administered by the Korea Institute for Curriculum and Evaluation (KICE, hereafter) for more than 20 years since its introduction in 1993 as the most critical standardised tool for college entrance. The test is offered every November, but the exact dates may change annually. Commonly on test day, the allocation of buses and subways are expanded to avoid traffic jams, students are also escorted by police officers with the siren on, and even aircraft take-offs or landings are forbidden during the listening test of the English section. Most test stakeholders such as students, parents and teachers believe that the CSAT score will determine the university the student may enter and that the entrance of a prestigious university would be a key to success in their future. Annually, approximately 600,000–650,000 students take the CSAT and 20% of them are
re-takers. This high rate of re-takers implies that demand for a higher CSAT score is very crucial for having a better chance to enter a more reputable university.

Three different types of benefits of higher education are introduced – investment benefits, consumption benefits and protective benefits – which indicate that receiving a college education increases the probability of having a better job with a higher salary, and protects from the disadvantages associated with the lack of a higher education (Kim, 2000). Therefore, the CSAT serves as a gateway of making a decision in life, determining the range of benefits one can expect after receiving a higher education.

<table>
<thead>
<tr>
<th>Period</th>
<th>Exam by government</th>
<th>Exam by each college</th>
<th>High school records</th>
<th>Admissions criteria</th>
<th>Nature of the exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>1945–1953</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>College exam, performance test</td>
<td>Subjective item</td>
</tr>
<tr>
<td>1954</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>Government exam → college exam</td>
<td>Four compulsory subjects, one optional subject</td>
</tr>
<tr>
<td>1955–1961</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>College exam, performance test</td>
<td>Subjective item</td>
</tr>
<tr>
<td>1962–1963</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>Government exam → college exam</td>
<td>Multiple choice</td>
</tr>
<tr>
<td>1964–1968</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>College exam</td>
<td>Subjective item</td>
</tr>
<tr>
<td>1986–1993</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Government exam with high school records → interview test, performance test</td>
<td>Seventeen subjects, multiple choice</td>
</tr>
<tr>
<td>1994–1996</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Government exam → college exam, with high school records, performance test</td>
<td>Three major fields, multiple choice item, situation item</td>
</tr>
<tr>
<td>1997–Today</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Government exam → college exam, with high school records, performance test</td>
<td>Three major fields, multiple choice item, situation item</td>
</tr>
</tbody>
</table>

Source: Joo, (2000, p. 95).
**Subjects of CSAT**

The CSAT focuses on thinking skills based on cross-curricula issues and the characteristics of each subject in accordance with the content and level of the high school curriculum. Students can choose fields and subjects of the test based on the fundamental principles of the Seventh National Curriculum, which values the ability, future career, needs and interests of every single student. It aims at evaluation based on thinking skills focused on cross-curricula issues in the subjects of the Korean Language and English, and the specific characteristics of each subject: Mathematics, Social Studies, Science, Vocational Studies, Foreign Languages and Chinese Classics. Students may select all or some of the five sub-tests, as well as the subjects included in the National Curriculum. Currently, items are developed based on the subjects of the National Curriculum. As of the 2013 CSAT, the subjects within the five areas are illustrated in Table 4.

Three subjects, Korean, Mathematics and English Language, are mandatory subjects for all students and they may select up to two out of ten subjects in the Social Studies test, and select up to two out of eight subjects in the Science test. In addition, one subject can be selected from among the Vocational Education tests. Finally, one subject can be selected out of nine foreign language-related subjects including Chinese characters and classics.

<table>
<thead>
<tr>
<th>Test</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korean language</td>
<td>Pragmatics (Speech) &amp; Writing I, II, Reading &amp; Grammar I, II, Literature I, II</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Math I, II Basic Calculus &amp; Statistics, Integral Calculus &amp; Statistics, Geometry &amp; Vector</td>
</tr>
<tr>
<td>English language</td>
<td>English I, English II, English Reading &amp; Writing, Advanced English Conversation (indirect assessment)</td>
</tr>
<tr>
<td>Social studies/Sciences/Vocational education (Select 1)</td>
<td>Social studies Up to 2 out of 10 subjects can be selected: Ethics &amp; Thought, Life &amp; Ethics, Korean History, World History, Law &amp; Politics, Economics, Society &amp; Culture, Korean Geography, World Geography, East Asian History</td>
</tr>
<tr>
<td>Sciences</td>
<td>Up to 2 out of 8 subjects can be selected: Physics I, Chemistry I, Life Science I, Earth Science I, Physics II, Chemistry II, Life Science II and Earth Science II</td>
</tr>
<tr>
<td>Vocational education</td>
<td>1 subject can be selected out of 5 vocational subjects: Agricultural (Biotechnology) Industry, Industry, Commerce &amp; Information, Marine &amp; Shipping, Household Affairs &amp; Business</td>
</tr>
<tr>
<td>Foreign languages/Chinese characters and classics</td>
<td>1 subject can be selected among German I, French I, Spanish I, Chinese I, Japanese I, Russian I, Arabic I, Vietnamese I, and Chinese Characters &amp; Classics</td>
</tr>
</tbody>
</table>

**The strict security of CSAT item development**

CSAT items are developed by a team of experts consisting of college professors and secondary school teachers. In total, about 500 item writers and reviewers are appointed as members of the annual CSAT item-developing team, who are isolated in a camp-form, for approximately 30 days. The experts lodge and board together at an undisclosed location to develop and edit the test items. Once the items are written and reviewed by the item-developing team and the reviewer’s team, the completed questions are printed at a secure printing facility. Even after printing, the tests are kept in strict security to prevent leaks and test booklets are delivered under police protection to test sites across the country.

**Washback of the CSAT**

**Social issues beyond education**

Success in Korea is often perceived as a secured place in one of the most prestigious universities. With this reason, students in Korea wishing to pursue post-secondary education need to take the state-commissioned annual CSAT exam in their high school senior year, but failure to obtain desired scores often means that the applicant has to wait another year and/or choose a different university or major that requires lower cut score. Although there are early admission opportunities in most colleges that require applicants’ high school academic records and interviews and/or essay writing tests, students still need the CSAT score to receive the final offer. Hence, the biggest difference-maker in the college entrance system of Korea is the CSAT results.

Given the information of the extreme importance of this high-stake exam and its strong impact on students, it is important to note that an enormous amount of money is being spent on private education, such as the cram schools (called ‘hakwon’) and private tutoring. The annual figure of Korean students spending on private education is approximately 19 trillion won ($19 billion), which is almost equivalent to the budget of a major city in Korea (Statistics Korea, 2013). Under extreme pressure, students do not feel comfortable enough to prepare for the exam through public education alone, so taking extra CSAT-preparation classes at private cram schools and private lessons are common cases, regardless of the students’ economic status.

**Flawed items and their impact**

In November 2014, Korea’s Ministry of Education formed a task force committee to reform the country’s highest-stake exam, the CSAT, due to its reoccurring flawed questions over the last two straight years. This was followed by public criticism on the development and administration system of the CSAT exam, when two flawed questions were acknowledged by the education authorities in the Biology II and English Language sections of the 2015 exam (held in 2014). Public anger and distrust towards the CSAT was amplified from the previous year’s flawed item dispute in the World Geography section. In 2013, the authorities denied the claimed flaw in the World Geography item, which led a group of students to file a law suit to reverse the decision. At last, the students won after fighting for almost a year against the education authorities in the appeals court trial.
Since 2000, CSAT items have been admitted to have flaws on five occasions in six different subjects (see Table 5).

As shown in Table 5, at first the controversial World Geography question was not acknowledged to be erroneous by the education authorities, who eventually ended up reversing their decision after losing at the court trials. Even the National Assembly set up a special law in order to establish a legal ground for the victimised test-takers to be admitted to colleges in addition to the original quotas. In the 2015 CSAT, two items in the subjects of English and Biology II were claimed to be flawed, but this time were admitted to be erroneous as the education authorities acknowledged both answers as correct, through a series of consults with academic societies. Due to disputes as a result of flawed items over the past two straight years, the president of KICE resigned from the position, taking responsibility for the flawed questions. This marked the third time that the head of the KICE stepped down as a result of flawed CSAT items. Issues on flawed CSAT items covered the headlines of major newspapers and television news programmes. Even the Korean President discussed the CSAT issue in the official government meeting, stating that the Ministry of Education in particular should form a group of specialists to overhaul the current CSAT system in a way that is aligned with its founding purposes.

Writing successful items is extremely difficult, and no one can expect to be able to write ‘perfect items’ consistently (Hughes, 2010, p. 63). When it comes to high-stake exams, like the CSAT, it is even harder to create items as the pressure is too heavy. For instance, on the CSAT examination day, as all items are revealed to the public through major newspapers and internet, thousands of people, not only the test-takers, check the test items and analyse on numerous aspects such as: test difficulty, flaws or estimated scores required to apply to prestigious universities. Because of this excessive interest and tension given to the national exam, erroneous questions in the CSAT exam are not generously accepted by the public. Although this trend is widely true in other developed countries as well, Koreans, including the non-test-takers, are more sensitive about this issue and often criticise the government for it. The above flawed item issues raised in the 2013 and 2014 CSAT suggest that the CSAT exam has an enormous impact on the entire nation, covering the headlines of all media and receiving massive attention from the public, including the government of the country.

**CSAT policies and practices**

**Korean History exam issue**

Recently, due to the territorial and historical conflict between South Korea and Japan, nationalism has spread nationwide in both countries. With this in mind, the
concern that Korean teenagers do not have a proper understanding of their country’s history is growing. Responding to this concern, the government will make Korean History a compulsory subject for the college entrance test starting in 2017 (Ministry of Education, 2013). So far, the subject of Korean History is currently 1 of the 11 optional subjects in the social studies section of the CSAT. Korean history will regain its status as a required subject for the national college entrance exam for the first time in 24 years beginning in 2017 as part of the government’s efforts to strengthen history education. In this case, the government is anticipating the positive washback effect of the CSAT. Politicians and the public think that teenagers do not have a proper understanding of history because they are not required to study it for the college entrance exam. This is a facet of the portrait of the education system in Korea which is very sensitive to polls and politics.

EBS materials-CSAT linkage policy
Reducing private education expenditure is one of the most popular election pledges that almost every president-elect has promised during their election campaign, but is also a promise that often fails to be met. Since the 1990s, every government has attempted to propose various education polices that could reduce private education expenditures. Application of EBS lectures and study materials has been one of the most successful policies so far that may have lowered the expenses on private education among Korean families. EBS is a public broadcasting entity, and since part of their yearly budget is funded from government grants, their major role is to provide educational services to citizens from infants to adults through television and radio programmes, Internet websites and published study materials. In terms of their CSAT-related services, one TV channel is solely designated to the CSAT preparation lectures, called the ‘EBSi,’ and corresponding study materials are developed and published by EBS as well. Under government policy, test developers of the CSAT are suggested to use the EBS’ CSAT materials when writing the CSAT items. The item writers use the items or passages in the EBS’ CSAT materials and modify them to create the new CSAT items. This way, students can prepare for the CSAT exams simply by relying on the EBS’ CSAT study materials alone. In 2010, the Korean Government announced that the linkage rate of the EBS materials and the CSAT would be expanded up to 70%, with an ultimate goal to reduce the overall expenditure on private education. The assumption behind this policy is that if 70% of the CSAT items are written based on one study resource, EBS material, students would not need to rely on private education as they can simply watch the CSAT lectures on the EBS channel with the EBS study material at a low cost. Even though there has been some success from this EBS-CSAT linkage policy, there are still other negative side effects that cause other problems such as controlling test difficulties, depreciated value of textbooks in the classroom, and inappropriate test-preparation methods (Cho et al., 2011).

With regards to controlling the test difficulties, the test developers of the CSAT English sections find it very difficult to use the passages from the EBS materials and control the difficulty level at the same time. Unlike other subjects, writing test items for English language requires a vast amount of sources on numerous topics to write passages for the reading section, but when the item writers are required to modify the passages from EBS materials, at least 70% of the whole test, they have to find other methods to control the item difficulty, usually to increase the difficulty (Kwon...
In most cases, item writers change the vocabularies from the original passages in the EBS materials to more difficult synonyms, or paraphrase or add sentences into much more complex ones. A few studies examined how this linkage policy of EBS materials and the CSAT has affected the vocabulary difficulty of the CSAT English reading items, and the results showed that the vocabulary difficulty has been significantly raised since the EBS-CSAT linkage policy (Kwon & Shin, 2014; Oh, 2014). Another serious problem is that many teachers are resorting to just covering EBS lectures in their classroom, distorting the original function of public education.

Various studies along with the Ministry reports have investigated the effects of EBS’ CSAT lectures on students’ reliance on private education, as well as the academic achievement in high school (Cho et al., 2011; Kil, 2014; Ministry of Education, Science & Technology, 2010, 2011; Oh, 2014). The report of the Ministry of Education, Science and Technology (2011) on EBS-CSAT link guideline stresses that the ultimate goal of EBS-CSAT link policy is to strengthen the public education with following three points:

(a) Use of the EBS’ lectures and study materials as supplementary sources to classroom teaching and learning
(b) Learn fundamental concepts in the classroom, and practice through EBS lectures and study materials to prepare for the CSAT exam
(c) Develop the CSAT test items that test-takers can feel the effect of the EBS-CSAT linkage (Ministry of Education, Science and Technology, 2011)

However, a study showed that although watching EBS TV lectures was not a very effective CSAT-preparation method in terms of improving scores, it had some effects on reducing the expenditure on private education, especially for students in low-income families or rural areas (Kil, 2014). In fact, approximately 19.4 billion dollars are spent annually on private education in spite of the recent economic depression (Korea Statistics, 2013). For example, households in Seoul are estimated to spend an average of 522 dollars a month, almost 16% of their income, on private education such as a cram school. Although the CSAT-EBS linkage policy contributes to reducing private education expenditures and absorbing private education demands through the public education system, some still argue that the policy for associating EBS materials with the CSAT may mislead teachers and students to neglect authorised textbooks in preparation for the CSAT by excessively focusing on the EBS materials. The strong link between EBS materials and the CSAT can cause the economic issue to eclipse the educational issue by restricting the scope of learning and teaching contents, as long as the government keeps this policy.

The reality in the classroom

The most influential variance that has affected Korean students’ academic achievement in the international comparative study of educational achievement is the affective characteristics of the students, which is defined as ‘student engagement, drive, and self-belief’ (OECD, 2013, p. 26). The results from both the PISA 2012 and TIMSS 2011 report that Korea is one of the top countries in academic achievement in reading literacy, mathematics and science, with steady improvement of scores and average over time. However, these international assessment results suggest that
Korean students showed less index level of intrinsic motivation despite the high academic performance. Table 6 shows an index of Korean students’ affective characteristics in learning mathematics in contrast to the OECD average (set as 0), with the standard deviation of 1. The result implies that Koreans students have a high level of anxiety and participation in learning mathematics, while the rest of all other properties showed lower index of affective characteristics than the OECD average.

Some studies have been conducted to explore ways to improve the affective characteristics of Korean students (Cho, Dong, Ok, Lim, & Jung, 2012; Kim et al., 2011), and most of them state that Korean students place higher value on the subjects that are more demanded in the labour market. In relation to this finding, the OECD’s PISA result reports that students’ appreciation of the instrumental value of a subject is reflected in the very high ratio of students who agree that their learning the subject will improve their career prospect (OECD, 2013). Most Korean students’ main drive and motivation for learning is closely linked with instrumental motivation, where entering a good university to improve their career prospect is highly valued. In other words, the rationale behind the outstanding performance of Korean students in the international assessment can be strongly affected by the washback effect of the CSAT. Although the Korean Government has conducted a series of curriculum reforms to break away from teaching traditional type of knowledge as a test preparation, and move towards the international trends with more focus on student engagement and confidence in learning, the actual curriculum in the classroom cannot help from focusing on test-preparations, mostly the CSAT. A study provided evidence for this reality in the classroom, by suggesting that more than 80% of the high school students were using the EBS materials instead of the textbook, both inside and outside the classroom (Cho et al., 2011). The policy-makers seek ideal outcomes on improvement in both performance and affective characteristics perspectives, but the reality in the actual classrooms in Korea seems to be strongly affected by the negative washback of the CSAT.

Table 6. Koreans student’s engagement, motivation, and self-beliefs in PISA 2012.

<table>
<thead>
<tr>
<th>Category</th>
<th>Properties</th>
<th>Index Overall</th>
<th>Index Boys</th>
<th>Index Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement with and at school</td>
<td>Sense of belonging</td>
<td>−.32</td>
<td>−.28</td>
<td>−.36</td>
</tr>
<tr>
<td></td>
<td>Attitudes towards school</td>
<td>−.38</td>
<td>−.41</td>
<td>−.35</td>
</tr>
<tr>
<td>Drive and motivation</td>
<td>Perseverance</td>
<td>−.09</td>
<td>.03</td>
<td>−.22</td>
</tr>
<tr>
<td></td>
<td>Openness to problem solving</td>
<td>−.37</td>
<td>−.26</td>
<td>−.50</td>
</tr>
<tr>
<td></td>
<td>Locus of control</td>
<td>−.33</td>
<td>−.30</td>
<td>−.36</td>
</tr>
<tr>
<td></td>
<td>Intrinsic motivation</td>
<td>−.20</td>
<td>−.12</td>
<td>−.30</td>
</tr>
<tr>
<td></td>
<td>Instrumental motivation</td>
<td>−.39</td>
<td>−.31</td>
<td>−.48</td>
</tr>
<tr>
<td>Mathematics self-beliefs, dispositions and participation in mathematics activities</td>
<td>Mathematics self-efficacy</td>
<td>−.36</td>
<td>−.22</td>
<td>−.52</td>
</tr>
<tr>
<td></td>
<td>Mathematics anxiety</td>
<td>.31</td>
<td>.20</td>
<td>.42</td>
</tr>
<tr>
<td></td>
<td>Mathematics self-concept</td>
<td>−.38</td>
<td>−.25</td>
<td>−.52</td>
</tr>
<tr>
<td></td>
<td>Mathematics behaviours</td>
<td>.17</td>
<td>.28</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>Mathematics intentions</td>
<td>−.21</td>
<td>−.16</td>
<td>−.28</td>
</tr>
<tr>
<td></td>
<td>Subjective norms in mathematics</td>
<td>−.21</td>
<td>−.13</td>
<td>−.29</td>
</tr>
</tbody>
</table>

Implications: need for assessment reform

In Korea, entering a prestigious university is a decisive factor in accomplishing socio-economic success of one’s life and desired career. For Korean students, the CSAT score is the first priority to consider when selecting which university to enter and what to major in, rather than their academic interests or aptitude. This trend is also widely true in other developed countries around the world, but the competition is incomparably fierce in Korea. Even after entering colleges, many students still struggle to search for their career path, because students often choose their major based on the CSAT score that satisfies the admission requirement to the programme, rather than choose the major they are interested in or like. In order to change or stop this vicious cycle, an assessment reform of the CSAT can be a crucial solution.

After a quarter century, the CSAT exam seems to have reached its limit and the time has come to examine the whole system, not to revise a few minor things but to design a long-term revision plan. Especially after a series of flawed CSAT item issues that swept across the nation, the demand for CSAT reformation has increased among the entire country. What is evident is that the Korean Government is now starting to reconsider this excessive focus on the CSAT. In the light of rising criticism on the college admission system, the government of Korea, mainly the Ministry of Education, launched a task force committee to reform the CSAT in December 2014, and unveiled their plans for improvement, which includes adoption of the criterion-referenced grading system for the English section, and changes in the way CSAT items are written and reviewed. The main focus of this change is that they will be moving towards the university entrance examination system that lightens students’ burden on CSAT preparation (Ministry of Education, 2014).

A long-term plan of reformation of Korea’s college entrance exam system is needed. One way to address a solution would be returning to the old system – to abolish the CSAT exam and let the individual universities select their students with complete independence, which include various aspects of students’ achievements other than academic achievements. Additionally, some experts assert that the CSAT should be changed to a qualification exam based on a criterion-referenced grading system. In fact, the Ministry of Education announced that they will adopt the criterion-referenced grading system for the English section of the CSAT from 2017, and that the committee will discuss for specific methods and plans to this change. However, changing the grading system of only one subject will not bring enough washback to the classrooms because the burden is likely to pass on to other subjects like Korean Language, Mathematics or Science. With the adoption of the criterion-referenced grading system, the burden on English section may be lightened, but the pressure on other subjects will increase as scores of these subjects will have more impact on the applicants’ college admission. This phenomenon, ‘the balloon effect’, is frequently mentioned by many stakeholders and the media to arouse attention to the potential obstacles in replacing the new grading system in the CSAT.

Since the measures of effectiveness of education in Korea is primarily based on the standardised tests, good teaching means teaching students to ace both in-class achievement tests and high-stake exams like the CSAT. In a broad sense, public education is meant to include extensive socialising skills in teaching, such as attitude, communication, character, leadership and collaboration. However, the reality is frustrating because many high schools in Korea mainly focus on cramming for knowledge and test-preparations in the classroom.
There is also a dilemma for policy-makers. Korea’s education policy-makers cannot help using the high-stake assessments as a tool to make or reform any education policy, and they are very sensitive on the washback effect which these assessments might bring to the society. For instance, the Ministry of Education of Korea has recently decided to abolish the curriculum-based English exam, iBT-based National English Ability Test (NEAT, hereafter), due to the worries of a bursting rise in the private educational budget by including English speaking and writing in the high-stake assessment. NEAT was originally launched as an assessment reformation movement towards formative assessment, with an attempt to facilitate teaching and learning communicative skills of English in the classroom. Moreover, the Ministry’s decision on the inclusion of Korean History as a required subject in the 2017 CSAT suggests that education in Korea, especially the high-stake assessments, are strongly influenced by political decisions, as it is one of the most sensitive, and fundamental issues that stakeholders react to.

In order to make positive educational reform in Korea, policy-makers need to loosen their reliance on a high-stake standardised test, and seek ways to use the assessment for supporting students to develop talents and achieve their dreams. Education policy-makers in Korea need to be aware of the proper use of the assessment as diagnosing functions to measure students’ academic achievement, instead of using it as a decisive factor to make one’s life decision. Even if the policy-makers are aware of the ideal purpose and function of the high-stake assessment, they cannot ignore the ‘national ethos’ that run deep inside Korea’s culture and tradition of using a standardised high-stake exam as a ‘gatekeeper’ to every stage of life, for fairness and reliability reasons. In any cases, Korea’s frequent policy changes in education, particularly the college admission policy, need to stop as it brings worse confusion to most stakeholders.

There are still many concerns among stakeholders of the state-commissioned CSAT test, who wish to avoid confusion caused by the revision of the college entrance system again. Teachers are worried that their method of teaching in the classroom will be affected by the new policy, and students are concerned that the new college entrance system would affect their way of preparing for it. Although it is expected that the new policy will not change the whole system drastically, even minor changes in the high-stake examination policy affect the stakeholders greatly. With regard to the new improved CSAT reformation plan, it is important to understand that the immediate plan will not ameliorate the fundamental issue, unless they break away from their heavy reliance on a standardised test, and focus more on how students can truly benefit from education and assessment in the near future.

Disclosure statement
No potential conflict of interest was reported by the authors.

Note
1. If the number is positive, the index of affective characteristic is higher than the OECD average, and if it’s negative it’s lower than the OECD average. This data indicates Korea’s relative position to the OECD average, and the negative number does not mean negative properties.
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