

# A Study of Public Innovative Schools in Korea

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**Abstract:** This paper investigates elements of the futuristic school model in Korea. With the start of the Fourth Industrial Revolution, there is an increased focus on education and its role in preparing students for advances in society that will require competency and adaptability in a rapidly transforming world. The introduction of cutting-edge science and technology will change countless aspects of society, thus calling for aptitude in various competencies such as creativity, communication skills and teamwork. Even though there exists an increasing need for a new model of schooling, improvements on the traditional school model has been fraught with numerous challenges as education reformers strive to meet these needs. This study intends to suggest a futuristic school model that can be applied in Korea. This innovative school model will be based on the literature review of public innovative school cases and the elements needed to create a successful futuristic school. Results of the literature review demonstrate that many schools in South Korea are now trying to strengthen their capacity to meet future societal needs, however, there are substantial difficulties involved in incorporating innovation into this new school model. Furthermore, the findings of the literature review show that one of the main problems hindering innovation in the educational industry is the current school evaluation system. Consequently, to meet the societal needs ushered in by the Fourth Industrial Revolution, it is crucial to revise current student evaluation practices to reflect the education offered in these innovative schools. In addition to an extensive literature review of innovative schools, this study conducted interviews and surveys that point to one significant element of importance to students: creativity. To improve students' creativity, the evaluation system should be focused on student enthusiasm and self-directed learning skills to meet expectations in the future competencies. Therefore, the purpose of this study is to examine the importance of the evaluation system that needs to be changed in order to enhance competence according to future societal needs

**Keywords:** Innovative schools, educational technology, student evaluation, creativity, future competencies

## INTRODUCTION

. In an era that is quickly feeling the effects of technological advances, countries around the world are aware that in order to compete in the global market, one of the main focuses should concern the quality of education that is available to their citizens. With the start of the Fourth Industrial Revolution, there is an increased focus on education and its role in preparing students for advances in society that will require competency and adaptability in a rapidly transforming world. Thus, the goals of education should not be static and should reflect the needs of a globally linked world. The introduction of cutting-edge science and technology will change countless aspects of society, thus calling for aptitude in various competencies such as creativity, communication skills and teamwork.

## LITERATURE REVIEW

As a means to bridge the gap between traditional school models and schools infused with innovation, educators should permit for collaboration and the creation of innovative curricula to prevent stagnancy and create new knowledge. Already, the educational field is benefiting from innovations in instruction methods like flipped-learning, focus on harnessing and enhancing creativity (Craft, 2001), and collaborative team-based instruction (Huggins, 2015) with access to cloud-based technology. In addition to changes in instructional models, there has been a significant presence of multiple types of reality altering devices used in the classroom (Lindgren, 2013) and a movement towards the inclusion of seamless learning techniques aided by technology (Greenhow, 2009).

Presently, there is a trend in the educational technology field that encompasses most, if not all, of

the previously mentioned trends in education; that is the creation of entire schools that infuse their curricula with these educational practices. This trend can be referred to as “schools of the future” or “innovate schools” that seek to provide students with the utmost state-of-the-art education; schools which also seem to be comprised of a healthy presence of technological components.

Although these innovative schools are found in various geographical locations throughout the world, they all share some basic traits: they seek to provide students with personalized or student-centered education that caters to the student as an individual (Hannafin, 2010), they connect the school with the outside world, be it through partnerships with companies or higher education institutions (Apple, 1992), and they encourage creative and critical thinking (Van Gelder, 2002).

### THEORETICAL FRAMEWORK

Professionals and academicians have conducted research on the frameworks and theories of core competencies, such as creativity and critical thinking skills to address changes in innovative schools. The educational profession in Korea has adapted increasing needs for core competency-based education rather than teaching specific knowledge to students (Baek, S. G et al., Yoon, JJ et al., 2007; Jonnaert et al., 2007). As a result of the increasing needs for competency-based curricula, the Ministry of education in Korea has announced the six core competencies provided by the 2015 revised National Curriculum in Korea.

These six competencies are Self-management, Knowledge-information Processing, Creative Thinking, Aesthetic-emotion, Communication, and Community competency (Ministry of Education, 2015). In the 2015 revised National Curriculum in Korea, the principal focus lies on student-centered classroom for student to actively participate in class and process-based evaluation. These six competencies are explained as follows:

- Self-management : Ability to regulate own decision and behavior with self-identity and self-confidence and to develop their own learning with basic skills and qualification for their career
- Knowledge-information Processing : ability to find and utilize information and knowledge to solve problems logically
- Creative Thinking skill : Ability to create new ideas or objects by learning and fusing knowledge, skills, and experience in various profession based on basic knowledge
- Aesthetic-emotion : the ability to understand and appreciate the meaning and value of life

with empathy and cultural sensitivity to humanity

- Communication Skill: ability to persuade and express opinions and feelings in numerous situations, and to respect and listen attentively to others
- Community Capacity : Ability to actively participate in community development with the values and attitudes required of members of the region, country, and global community

### METHODOLOGY

#### Survey

The specific empirical analysis methods used for the data collected in this study are as follows. First of all, a frequency analysis was conducted to examine the importance of future education that students should receive in the school. For the frequency analysis, a survey was taken by 97 public high school students in Gyeonggi province. This survey was conducted specifically in Gyeonggi province, since currently this province is interested in building a futuristic high school. Moreover, the high schools located in this province are presently attempting to change their curriculums and programs to focus on future education as well as supported by government. The survey questions were distributed as follows:

What are the most important future competency that students should learn in the school?

- 1) Creative problem solving capability
- 2) Communication skills
- 3) Democratic community capacity
- 4) Digital based instruction

Secondly, to examine the difference between importance and performance, we conducted a T-Test. All of the empirical analysis was performed using the SPSSWIN 21.0 program. The survey was focused on characteristics of innovative high schools such as Creative problem solving skills, Competency based training, Student participation class environment, Course centered evaluation, Digital based instruction, On-line student support, out-of-school experience, student participation in school decision-making, subject selection, and school club activities.

#### Qualitative Study

For a more detailed and targeted research, this study interviewed seven high school teachers to ascertain teachers’ opinion of above the questions. This interview was conducted as a group interview at the same high school as the aforementioned student’s survey was taken.

## RESULT

### Survey results

The preliminary results of the survey conducted with students, based on their opinions of future abilities that should be focused on in innovative high schools, students choose creative problem solving (49%) as the most important ability to improve in the school. This result was followed by digital based instruction (22%), communication skills (16%) and democratic community capacity (14%). Therefore, creativity in problem solving is the future ability that students believed to deserve the primary focus for improvement.

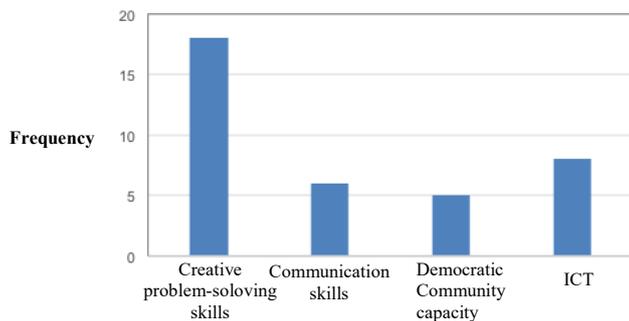


Figure 1. Students' perception on core competencies in Innovative high school

Secondly, the result showed that school club activities ( $M = 4.32$ ,  $SD = .98$ ) was the most important among the characteristics of the future high school among the characteristics of the future high school, followed by student participation class ( $M = 4.25$ ,  $SD = .84$ ), creative problem solving ability ( $M = 4.18$ ,  $SD = .86$ ), school decision making ( $M = 4.18$ ,  $SD = .94$ ) and subject choice ( $M = 4.18$ ,  $SD = 1.02$ ) were important.

Table 1. Characteristics of future high school

Characteristics of future high school	Importance		Performance	
	M	SD	M	SD
Creative problem-solving skills	4.18	0.86	3.39	0.92
Competency based training	4.11	0.79	3.50	0.88
Student participation in class environment	4.25	0.84	3.71	0.81
Course centered evaluation	4.07	0.81	3.36	1.03
Digital based instruction	4.04	0.79	3.32	1.06
On-line student support	4.07	0.77	3.54	0.92
Out-of-school experience	4.11	1.10	3.21	1.17

Student participation in school decision making	4.18	0.94	3.79	0.79
Subject selection	4.18	1.02	3.96	0.88
School club activities	4.32	0.98	4.21	0.57

The results of the survey show that Competency-based education, course-based assessment, digital-based instruction, online student support, and out-of-school experience are relatively low in both importance and performance. For the creative problem solving skill, students recognized that it is an important ability to develop, however, when compared to performance it was deemed was low. Therefore, high schools should be more concerned about how they will make students perform their creativity in the school.

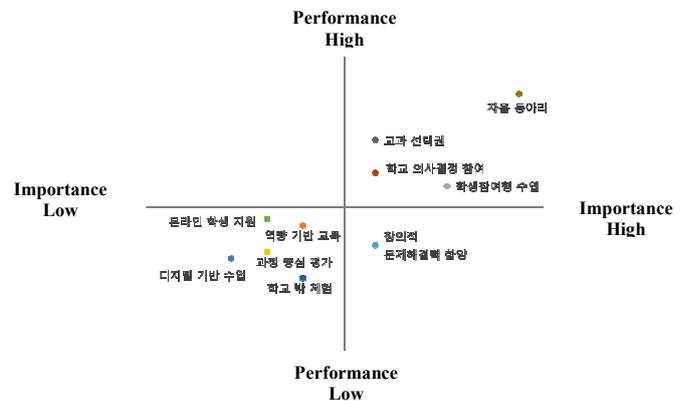


Figure 2. Importance performance Analysis Result

### Interview results

Among the desired characteristics of the innovative high school, high school teachers largely believed that creative problem solving skills was the most important area in which schools should develop the curriculums and programs for the students. However, since the existing evaluation system is focused on the college entrance examination, it is difficult to change the current evaluation system or lecture based studies to reflect the wants and needs of both the students and teachers.

## DISCUSSION

Through the results of the survey and interview, it has been determined that the development of creative problem solving skills is highly sought by both teachers and students, and should subsequently be taken into consideration when constructing future education curricula that aims to tailor itself to society's future competency needs. Moreover,

students and teachers also recognized that creative problem solving skills should be integrated at higher rates, than at present, into school education programs.

However, the current school situation has not allowed for creative problem solving skills to be afforded a prominent place in high school curricula and programs. Particularly, this situation is propagated by the fact that high school curricula is fundamentally designed for college entrance examination and the achievement of the most optimal scores. For this reason, lecture-based classes are still being held in many high schools in Korea. In order to change the current school system, first of all, the current school evaluation system should be place more focus on students' personal abilities and competency. Second of all, the six competencies we suggested should be used for teaching skills in each subject. And lastly, students' performance level should be evaluated by teachers.

### CONCLUSION

Ultimately, the fundamental goal of providing our students with an education is to improve upon the delivery of education so that knowledge is transmitted optimally onto learners in both an effective and efficient manner. Innovation in education has the ability to enhance current modes of instruction and can have positive tangible effects as it is acquired and integrated into an educational system. Even though there exists an increasing need for a new model of schooling, improvements on the traditional school model have been fraught with numerous challenges as education reformers strive to meet these needs.

One aspect of current Korean high school education, which acts as an obstacle to the direction of innovation in its schools, is the college entrance exam that assesses students on traditional competencies and not the future competencies needed to be successful in future employment. As a consequence, it is of upmost importance to support the process of transmitting these newly required aptitudes through carefully designed curricula that prepares their students for a successful future while taking into account the needs of the students in acquiring said competences.

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