CASE STUDY OF AN EXCELLENT TVET INSTITUTION¹:

Yeungjin School, Korea

By

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¹ This case study has been conducted with the support of the Korea-World Bank Partnership Facility Grant to promote job creation and skills development in the East Asia region. It aims to provide an example of an excellent TVET facility, as a model for TVET reforms in the EAP region.
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Introduction

Background

East Asian countries are among the fastest growing economies in the world over the last decade. However, as growth continues, the countries in East Asia are faced with a skills shortage and mismatching that has limited their economic growth. To tackle this issue, regional governments are currently restructuring their respective Technical and Vocational Education and Training (TVET) systems to guide schools towards demand-driven education and training.

In this context, the World Bank’s East Asia Education team has embarked on an in-depth study of “Excellent Institutions” by selecting particularly outstanding cases in select countries of East Asia to research (a) which factors contribute to a particular school’s successful outcomes; (b) how the school developed its demand-driven system; and (c) how the school utilizes finite resources to enhance school performance. The purpose of this study is to provide policy makers with empirical evidence that will be used to develop new policies to direct schools towards more market-responsive and demand-driven approaches. Specifically, it aims to; (1) offer guidance for individual institutions to develop innovative methods to improve the internal and external efficiency of their programs and determine resource priorities; (2) provide the World Bank with empirical evidence to guide the knowledge services it offers client countries regarding TVET policies and practices; and (3) engender a productive dialogue on the improvement of TVET relevance within the EAP region.
This report summarizes the successful experience of Korea’s Yeungjin School, analysing the problems it has encountered in its operation and providing lessons learned to improve vocational education. This research is part of the “Excellent TVET Institutions in East Asia and Pacific (EAP)” study commissioned by the World Bank.

**Literature Review**

**Definition**

The definition of *excellent* is measured by the school’s internal and external efficiency. *Internal efficiency* refers to the relationship between the inputs and outputs and focuses on what occurs within the educational and training processes. Then, what happens to the outputs of the training process in relation to economic and social requirement is defined as *external efficiency*, which is also referred to as *relevance* of the program (Johanson and Adams, 2004). Therefore, the excellent TVET institutions produce the best training outcomes by retaining high internal efficiency.

**Premised Four Factors Contributing to School Outcomes**

Based on the literature review, the study premises that a school becomes excellent when it (1) conserves adequate resources; (2) delivers relevant programs; (3) develops an effective management system; and (4) establishes linkages with enterprise in the three previously discussed areas. Additionally, there are external factors impacting the success of schools, called “ecosystem factors” (Altbach and Salmi, 2011).

**Research Design and Method**

**Research Design**

By conducting an in-depth analysis, this study seeks to find (1) whether or not the above premise factors impact school outcomes; and if so, then, (2) which of these factors is the determining factor that contributes most to the enhancement of school performance and in what context (various settings and time periods within respective countries); and (3) how this factor can be strengthened based on suggestions from teachers/instructors and school administrators. Korea’s BMT was selected because it meets all three criteria.

**Research Method**

The study collected data from multiple sources (archived information, quantitative measures, a survey, and interviews) to increase validity.

*The Survey*

The survey is designed to directly address whether or not the schools retain each factor (resources, teaching, management, and linkage with industry) and these factors’ impact on school outcomes. It was conducted with the students and professors of three majors directly
related to the manufacturing sector [School of Mechanical Engineering, School of Electronic and Info-Communication, and School of Electronic Engineering] and the President of Yeungjin. Six hundred ninety-three students out of the total number of 1,400 responded to the survey. Among faculty members, 23 professors of the aforementioned majors responded to the survey.

The Interview

The interview investigates the association between the premise factors and the factor most effective in enhancing school outcomes and how this identified factor can be improved. To conduct an in-depth analysis, we interviewed 10 students, 10 professors, and the President.

About Yeungjin

Educational Purpose, Goals and Strategic Plan

Yeungjin’s educational purpose is to cultivate creative and highly proficient professional technicians by strengthening specialized skills via a demand-driven program. Specifically, it aims to, 1) cultivate professional technicians who can be 21st century leaders; 2) educate students to become professional technicians with clear vocational goals; 3) develop and provide a customized education to students; 4) help students prepare for globalization by providing information technology and foreign languages; and 5) help students develop socioemotional (SE) skills (e.g. ethics, diligence and consideration for others). To achieve these goals, Yeungjin has developed the following integrated strategy.

Table 1: Strategy

<table>
<thead>
<tr>
<th>Establishment of a Top-Class Education System</th>
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<tbody>
<tr>
<td>Admissions Competitiveness</td>
<td>Increase the quality of applicants by strengthening the admission process</td>
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<tr>
<td>Diversification of Academic Programs</td>
<td>Improve education quality by further developing instructors’ program competencies</td>
</tr>
<tr>
<td>Customized Education</td>
<td>Cultivate highly skilled workers to meet industrial demands by strengthening customized education</td>
</tr>
<tr>
<td>Industry-College Cooperation</td>
<td>Increase graduate employment rates and the quality of job placement by strengthening school-industry cooperation</td>
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<tr>
<th>Innovation of Administrative and Financial Structure</th>
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<tr>
<td>Management System</td>
<td>Cope with rapid changes in educational circumstances by reforming the management system</td>
</tr>
<tr>
<td>Administration</td>
<td>Provide student-focused administrative services by retaining competent employees</td>
</tr>
<tr>
<td>Diversification of Resources</td>
<td>Lower dependence on tuition and fees by finding other resources</td>
</tr>
<tr>
<td>Construction of Future-oriented Educational Infrastructure</td>
<td>Play a vital role in local economic growth by facilitating an industry-college</td>
</tr>
</tbody>
</table>
Techno Valley  cooperation

Education-Centered LLL Hub  Become a Life Long Learning hub by providing training services to SMEs for their employees

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<th>To Foster International Competitiveness</th>
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<tr>
<td>Internationally-associated Customized Education</td>
<td>Meet demands from overseas Korean companies by expanding customized education</td>
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<tr>
<td>Support System for International Students</td>
<td>Institute a system that supports international students by providing Korean language, student life, study guides, career counseling, etc.</td>
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<tr>
<td>Global Education Programs</td>
<td>Cultivate global leaders by developing programs that aim to improve international work skills</td>
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<tr>
<td>Global Education Support System</td>
<td>Create an educational environment that caters to international students by meeting international tertiary education standards</td>
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http://www.yjc.ac.kr/CmsHome/MainDefault.jsp

Outcomes

Employment Rate

The College Sustainability Index\(^2\) evaluates performance in five areas: education, research, job placement, management, and convenience / fairness / communication among 132 Korean colleges nationwide. In 2012, Yeungjin received the highest score (777.3 points) among 132 colleges, ranking first in job placement, second in management, and third in education. According to the Ministry of Education’s (MoE) “Job Placement Statistics of Higher Education Institution Graduates 2012,” Yeungjin ranked at the top in job placement among colleges retaining more than two thousand graduates with 79.3% of its graduates employed. In 2011 the MoE, whose aim is to cultivate Korea’s best technology masters in colleges, nominated Yeungjin as one of seven World Class Colleges (WCCs). This is a meaningful award as a WCC is a comprehensive evaluation that assesses college infrastructure, educational performance, financial integrity and the satisfaction rate of industries with education. As the graduate employment rate is an outcome indicator in this study, Yeungjin is assumed to be an excellent school. Next, we will reversely examine whether or not the school possesses all of the premise factors before determining whether or not these premise factors are likely to impact employment rates, and in what direction.

\(^2\) The Index is jointly developed by the Kyunghyang Newspaper Economic Research Institute for Sustainable Society (ERISS), World with No Worries on Private Education, Samjong KPMG, LLC, Hyundai Research and Young Entrepreneurs for Sustainable Society.
Findings

Factor 1: Adequate Financial and Human Resources

To determine whether or not Yeungjin has adequate financial and human resources to enhance student employability, we conducted a survey and interview with teachers and students.

The Teachers’ Perception

During the survey, teachers were asked to assess three areas, a) the school’s financial resources and facilities; b) teachers’ recruitment standards and in-service training; and c) the support system for employment. Results show that Yeungjin retains adequate financial and human resources. All surveyed teachers believe the school provides adequate financial support to students, and 96% responded that providing financial support plays a primary role in attracting talented students. Regarding school facilities, 65% of teachers answered “excellent,” while 57% answered “excellent” for equipment maintenance, and 56% answered “excellent” for retaining full and updated equipment.

In the area of human resources, teachers were asked about teacher recruitment and in-service training. For teacher recruitment, teachers were asked to identify which is most important, 1) minimum academic qualifications; 2) minimum years of industry or work experience; 3) minimum years of teaching experience; or 4) other. Thirty-five percent responded that “minimum years of industry or work experience” is the most important criteria. Ninety-one percent responded that Yeungjin’s recruitment standards for teachers/instructors are adequate enough to provide students with state-of-the-art skills. All of the teachers believe themselves to be competent teachers with the required skill set for teaching. Ninety-one percent of Yeungjin teachers had completed in-service training as of April 2015 and the majority (67%) had taken a formal type of in-service training, such as mentoring or leadership coaching.

Teachers were also asked to assess Yeungjin’s support system for student employment. Ninety-one percent answered that the school has a support system to assist students with their career plans and provides various employment services, such as a job service center. In addition, all teachers said that they have guided their students in developing career plans.

Regarding facilities and equipment, teachers pointed out the benefits of participating in government projects that support SMEs. The school has been nominated as a learning and skill hub in the region for several government projects that support SMEs in boosting the local economy. Through this SME consortium, Yeungjin provides SMEs access to its facilities and faculty in exchange for the SME’s providing expensive machines and equipment. The teachers said that through this process, the school was able to upgrade its training facilities and secure the best equipment in the region.

Regarding human resources three key themes emerge from the study, 1) teachers with industry experience are recruited, 2) advisors work closely with students, and 3) a virtuous circle is maintained. First, teachers pointed out that Yeungjin recruits teachers from industry, particularly those who hold middle or high level positions at large companies, via public
contest. The goal is to secure faculty members who are able to develop demand-driven programs as well as strengthen school-industry cooperation. Selected instructors are able to develop relevant curriculum and training materials, as they know the types of skills and knowledge demanded by the current labor market. Additionally, they respond to market changes by continually updating training materials and, if necessary, changing entire courses. All teachers agreed that hiring instructors from industry has a direct impact on increasing the graduate employment rate. Based on their industry experience, instructors are able to inform students of the types of certificates and courses needed to attain employment in their chosen industry and, ideally, at their dream company. Teachers are further able to help students gain employment by leveraging their own networks.

Second, in Yeungjin, there is an advisor for each class who is responsible for approximately 30 students. Via one-on-one meetings, each advisor works closely with their respective student on developing their career plans, providing company employment information and job opportunities. Advisors teach job ethics classes to help students prepare for work, provide career counseling, and support students in developing their academic skills.

Third, teachers pointed out that the school is in a virtuous circle, similar to that described by the teachers of Busan Meister High School. Because the school retains adequate resources, excellent facilities and faculty members, it produces high graduate employment rates, particularly with high quality jobs. Then, based on good assessment results, the school receives more financial support from the MoE and is able to participate in the government-supported SME consortium. This in turn helps the school retain excellent facilities and strengthens school-industry cooperation. Then, the school is able to secure competent students and teachers and, in this manner, continually produces the best outcomes.

**The Students’ Perception**

During the survey, the students were also asked their perception of the school’s resources. Eighty-three percent reported receiving at least some level of financial support to cover course fees, residential costs, academic materials, etc. Sixty-seven percent are satisfied with classroom conditions. Regarding teacher competence, 71% said they are satisfied. Regarding the career support system, 63% had received career counseling, and among these, 92% said that the counseling helped them navigate their career plans in order to secure a job. In general, 66% of the students are satisfied with school life.

In addition to interviewing teachers and staff, we conducted an in-depth interview with ten students. Those interviewed agreed that enough machines and equipment are available to them for their practical training. They are impressed with Yeungjin’s training facilities, because some of the expensive machines they have access to are not available in other universities and they notice no shortage of machines or equipment.

All interviewed students agreed that their teachers are competent. According to the students, based on their work experience with large companies, their teachers are able to design demand-driven, customized programs, teach the most relevant skills, and develop useful training materials. Interviewed students mentioned that based on their experience, the teachers continually give students tips for employment preparation, guide students in developing career plans, and provide company-specific information. The students said their
teachers directly assist in connecting students with companies within their respective networks. Furthermore, interviewed students said Yeungjin’s teachers continually update knowledge and skills in their fields while maintaining relationships with companies. Teachers are able to freely develop and update training materials for the classes they teach. One student mentioned that some employed graduates still use school training materials to do their current job.

Students said that the one-on-one meetings with an advisor are very helpful in solidifying their career plans because advisors provide them with company specific information and inform them of certificates necessary for applying to a particular company.

Interviewed students agreed that most teachers not only teach but also emphasize individual student job placements. They continually provide tips for job preparation during classes and directly help students obtain jobs by matching company requests with students’ skills to identify ideal candidates. By utilizing their own network, teachers find places for in-company training and even jobs for students. Most importantly, students said that their teachers care about them, for example, supporting late learners by using personal time after class and on weekends to help them catch up. All interviewed students agreed that their teachers are available anytime they need help outside of class and many provide special weekend lectures and lectures during vacation.

Factor 2: Relevant Program

Program Structure

Yeungjin has three departments:

The School of Mechanical Engineering

This department includes three sub-majors:

1. CAD/Mechanical Design Course provides knowledge and skills for CAD needed to design machines like semiconductor equipment, automobiles, and ships.

2. Mold/Tooling Course provides knowledge of Mold and Tooling and skills for Mold/CAM by using 3D CAD. The students also obtain skills for CAM engineering, precision machining, precision measurement, machining technology, mechanical drawing, and mold and die structure.

3. Robot and Automation System Course provides knowledge and skills for controlling advanced hybrid systems: Mechatronics is the combination of mechanical and electronic engineering, especially offered to students with practical knowledge and skills relating to Automation, Robotics, and CAM technologies.

The department operates seven customized classes based on an agreement with companies, including LG Display Class, Refrigeration and Air-conditioning Class, Japanese Automobile Design Class, and Shipbuilding and Ship Engineering Class, etc.
**School of Electronic and Info-Communication**

The department includes three sub-majors:

1. *Electronic Information Course* provides students with theoretical and practical knowledge on electronic technology, control systems using computers, microprocessor applications, semiconductor technology, embedded systems, display technology, and electronic equipment and applications.

2. *Solar Semiconductor Course* fosters professionals in the field of solar cell and semiconductor manufacturing technology such as semiconductor processing, solar cell processing, LED application, optical components application, green energy, etc.

3. *Info-Communication Course* provides students with theoretical and practical knowledge on mobile communication systems, high-speed info-communication systems, embedded systems, info-communication equipment, mobile communication equipment, and mobile internet.

Graduates of this major can obtain certificates in the areas of Radio station equipment, Electronics industry, Radio electronic industry, Information and Communication, Information processing, Electronic circuit design, Semiconductor Design, Digital control, etc. Affiliate companies include Samsung Electronics, Samsung Display, LG Display, LG Chem, Ltd. SK Telecom, Korea Telecom, POSCO, etc.

**School of Electrical Engineering**

The department includes two sub-majors:

1. *Renewable Energy Course* cultivates professionals in the field of the new and renewable energy industry concerning low carbon and green growth as well as development of alternative energy sources. Course topics cover solar cell process, PV system, power conversion technology, etc.

2. *Digital Electricity Course* provides practical and theoretical knowledge in the field of electrical technology. Course topics include automation facilities, electrical facility design, operation and maintenance through computerized technology.

Graduates of this major can obtain certificates in Electronic Power, Electrical Machine, Industrial Safety Management, Industrial Instrumentation, Railway Signaling, Power Engineer, Electrical Engineer, etc. Affiliate companies include Samsung Electronics, Samsung Electro-mechanics Co., Ltd, Samsung LED, Samsung Display, LG Electronics, LG Display, LG Chem, Ltd., SK Hynix, POSCO, Hyundai Heavy Industries Co., Ltd, and Korea Electric Power Corporation.

**The Teachers’ Perception**

The teacher survey investigated three areas: a) program relevance, b) students competencies, and c) articulation between the two. In regard to the relevance of the program, 61% of the
teachers strongly agree that the school curriculum (both academic and practical) reflects current industry demands. Also 57% of the teachers strongly agree that the school offers high quality programs. However, 57% of the teachers responded that their students need to take additional outside training in order to secure employment.

Eighty-three percent of teachers believe their students are competent and 52% strongly agree with the fact that the school is attracting highly competent students. Overall, 87% of the teachers believe that the school provides relevant teaching programs (including practical training) to produce competitive school outcomes. Eighty-three percent of teachers believe that the school offers academic programs to students who want to continue their education/pursue an advanced degree, and all teachers think that Yeungjin’s program helps students advance to higher education.

The interview followed, and three program-related themes emerged, the importance of 1) developing a demand-driven program, 2) having a flexible curriculum, and 3) balancing theory and practical training. First, the teachers agreed that Yeungjin’s programs meet industrial needs by pointing out its demand-driven programs. Each year, teachers and representatives from companies of each sub-major design curricula together via an annual committee meeting, updating the curriculum based on company needs. Teachers mentioned Yeungjin’s customized classes. Each department has several customized classes created upon request from a specific company3. Accordingly, students obtain more specific skills than transferable skills, enabling them to immediately work for specific companies upon graduation. A second, related advantage

The strength of Yeungjin’s program lies in its flexibility; teachers continually review and update programs in response to rapid industry changes. Even customized classes can be closed if there is low demand, and new customized classes are created if there is high demand. Teachers also mentioned that feedback from alumni who are currently working at prospective companies is useful for updating the program.

Third, teachers pointed out the importance of balancing theory and practical training. Ideally, training schools might provide theory and basic knowledge of each field as well as the SE skills needed to succeed in the world of work. At the same time, the school needs to provide enough practical training to help students prepare for future, hands-on jobs. One teacher shared his own experience upon graduation from a top ranking university saying, “I had difficulty working at Samsung right after joining the company, because I mainly studied theory and did not have much practice while studying at school.” Therefore, he believes that Yeungjin should emphasize practical, hands-on training, in addition to theory. In general, teachers agreed that provision of relevant knowledge and skills directly increases graduate employment rates because the knowledge and skills obtained in school are also tested during the hiring process. In Korea, the hiring process includes a Document Screening Process, Aptitude Test, and Interview, and during the interview, companies test applicant knowledge in their chosen field.

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3 The School of Mechanical Engineering has seven customized classes, the School of Electronic and Info-Communication has 13 customized classes, and the School of Electron Engineering has 11 customized classes.
The Students’ Perception

According to the survey, only 9% of students pursue further education, while 91% want to be employed upon graduation. Among those who are looking for a job, 60% expect to obtain a mid-level skilled position and 71% expect to receive more than USD 20,000 in annual income. Fifty-nine percent of students hold certifications. Fifty-four percent of surveyed Yeungjin students said they are satisfied with the program. About half said that they receive more than 10 hours of practical training per week, while the other half indicated that they take less than 10 hours. Thirty-eight percent receive additional out-of-school training, and 46% are planning to receive additional training from another institute after graduation. Nevertheless, 69% believe that Younjin is adequately preparing them to find a job upon graduation.

All ten of the interviewed students agreed that the curriculum is designed well enough to help them acquire a range of information from basic knowledge and theory to specialized knowledge and hands-on skills. During the first year, all students study common subjects, then they are divided into sub-majors based on their interests and levels of competence. During the 2nd year, the students obtain in-depth knowledge and skills in their relevant fields. The students reported that they are satisfied with this balance of theory and practical training. Like the teachers, they said that the program should include theory, because the college is not a training institute whose program is mainly designed to help trainees obtain certificates. The students also believe that their practical training is adequate preparation for employment opportunities. However, considering the importance of possessing particular certificates for certain job applications, aside from the regular courses, they feel it is necessary to take additional courses to obtain these certificates. Finally, students reported improved creativity after taking the Capstone course. During the class, the students organize into groups, select a topic, develop an idea based on open debates and discussions, present their ideas, produce a product, conduct a survey for market value, and present their final product during graduation. The teachers support them in finding necessary materials and share sound advice. According to them, during the Capstone process, their ideas are developed, and most importantly, their self-confidence increases.

Factor 3: Effective Management System

Yeungjin’s uniqueness in terms of school organization is its emphasis on the school-industry linkage by instituting a separate “Industry-College Cooperation Corp” division. Four departments comprise this division, a) Industry-College HRD Center, b) Office of Industry-College Convergence, c) Daegu Techno-Park Yeungjin Branch Office and, d) the Business Support Center.

Teachers’ Perception

During the survey, the teachers assessed Yeungjin’s leadership and the management system. Fifty-six percent strongly agreed that the school leaders execute the school’s guiding principles with clarity, and 48% said that the school has shared its vision with its faculty members. Furthermore, 57% of teachers strongly agree that their school leaders are consistent with their words and actions. Regarding leadership’s consideration for
employees, 52% of the teachers responded that their school leaders encourage collaboration by building trust among faculty members; 52% strongly agreed that their leaders encourage self-determination and teacher competency development while the same percent agreed that their school leaders recognize their contribution by showing appreciation. Sixty-one percent of the teachers strongly agreed that leaders envisage the future and consistently look for new and innovative products/processes and 65% responded that the school has the capacity to deal with both anticipated and unexpected challenges/risks. Regarding relationships with the leaders as well as with other teachers, 48% said their relationship with the President of Yeungjin is excellent, and 39% said their relationship with other teachers is excellent.

Interviewed teachers pointed out management’s contribution to Yeungjin’s high graduate employment rate. According to them, under strong leadership, Yeungjin’s management system coordinates the efforts of all faculty members to accomplish the school’s single objective of increasing the graduate employment rate by utilizing financial and human resources efficiently and effectively. First, the teachers all agree that leadership is key to not only the school’s outcomes but also the school’s survival. According to them, 2-year colleges were founded based on the country’s economic needs during the mid-1970s. Until the early 1970s, Korea did not have 2-year TVET colleges, because the government emphasized expanding TVET high schools and 4-year universities to supply urgently needed skilled workers to fast growing industries; however, as industry became more complicated, companies also began requiring mid-level skilled workers to fill the gap between low and high skilled workers. Due to resource constraints, the government encouraged the private sector to establish 2-year colleges to produce these mid-level technicians by providing more relaxed regulations to school openings. Yeungjin was one such 2-year school established during this period.

Since the mid-1980s however, 2-year colleges have faced the major issue of declining demand. The factors contributing to low student demand for 2-year college include shifts in the economic structure demanding more higher skilled workers, the change in the government’s higher education policy allowing 4-year universities to accept more students, establishment of in-house universities at large companies that provide specific skills, and increasing social demands for a 4-year diploma. As a result, the training market became more competitive, and 2-year colleges lost competitiveness against 4-year and in-house universities. Like other 2-year colleges, Yeungjin has faced the challenge of maintaining adequate numbers of students. According to the teachers interviewed, the main contributing factor to school survival during this time has been strong leadership and management: the President supports teachers and has helped them feel a sense of ownership of and belonging to the school.

Under this strong leadership, Yeungjin has reformed its entire school system. First, it changed the management system to coordinate the efforts of all faculty members to accomplish the school’s single objectives of maintaining adequate student number by utilizing financial and human resources efficiently and effectively. Next, teacher recruitment policy was changed in order to replace academic based teachers with industry-experienced teachers. Via public contest, the school started recruiting new teachers who held middle to high positions at large companies. Next, with this manpower, the school reformed the curriculum from supply to demand-driven. In order to develop a demand-driven curriculum, teachers conducted a series of surveys and interviews with specialists of companies in each major and created
competency-based programs based on their responses. Finally, management knew that providing a demand-driven program was key to success in the training market as most schools then provided supply-driven courses and failed to meet industrial demands. Accordingly, the school strengthened school-industry cooperation by utilizing teachers’ networks and participating in government projects that support SMEs. For the latter, the participation in government projects that support SMEs in the region will not only enable the school to secure the best facilities but also strengthen school-industry cooperation to secure in-company training places and employment for the students.

Even after entering this “new normal” stage, Yeungjin’s leaders continually prepare for the next challenge, for example Yeungjin was the first college to advertise itself in 1995. In addition, it began accepting younger students to offset the impacts of Korea’s aging population.

Teachers agree that strong teacher commitment is another key to success; in other words, teachers share their visions and communicate with each other as well as with their leaders. By doing so, teachers feel a strong sense of ownership and belonging. The teachers said that during difficult times, strong leadership support enabled them to develop ideas to reform the program, increase their sense of ownership, and make tremendous efforts towards mutually achieving school goals. For example, they visited high schools to attract students, developed the customized program and training materials, and created MoUs with companies.

Third, regarding resource management, the teachers agreed that the school utilizes its financial and human resources efficiently. In terms of human resources, the teachers pointed out the school’s performance-based payment and incentives. The teachers’ work on developing a specific customized course, strengthening school-industry cooperation by establishing MoUs, and conducting administrative work is reflected in the teacher’s assessment that is linked with immediate rewards. In fact, the most important element of the teacher assessment is their students’ employment. Incentives have also played a role; according to teachers, the school changed its teacher wage policy from seniority to performance-based payment. Teachers agree that these measures encourage teachers to produce better outcomes.

**Factor 4: School-Industry Linkages**

**Customized Education**

Yeungjin has successfully built a customized education system via strengthening school-industry cooperation. Customized education means that the school receives requests from select companies to supply a certain number of skilled workers and then develops courses and curricula to meet their requests. Then, the students are expected to be hired by these companies upon graduation since they have acquired company-specific skills in addition to transferable, basic technical skills. Currently, Yeungjin is requested by 285 companies - large and SMEs, domestic and overseas - to supply 4,493 technicians.

By participating in several government projects, Yeungjin has strengthened industry cooperation. The first example is the industry-college convergence zone development.
project, Quality of Working Life (QWL), which is managed by the Ministry of Knowledge Economy. Both the MKE and private sector fund the project with a total of USD 450 million. The purpose of QWL is to produce skilled workers by strengthening school-industry cooperation that connects education, R&D, and employment. The project required a college campus with adequate training facilities, and Yeungjin met this criteria. The projected number of skilled workers that Yeungjin will train for the next five years will be 3,000 and the school plans to bring in 200 SME-sized enterprise research institutes. By participating in this project, Yeungjin expects to strengthen its relationships with the SMEs, as well as contribute to local economic growth by supplying adequately skilled workers to the SMEs.

**Teachers’ Perception**

All surveyed teachers believe that a school should build a formal partnership with companies and that Yeungjin has built a successful partnership with companies, enhancing school outcomes (e.g. graduate employment rate). The companies provide resources (e.g.) scholarships, in-company training for students, instructors and special lectures. As a hub of the SMEs consortium in the region funded by the government, Yeungjin provides SMEs with facilities and human resources. For example, Younjin teachers provide technical assistance to the SMEs. At the same time, teachers obtain information on employment, industrial demand, and company-specific information from these companies.

For the program, the teachers of each major and representatives from ten relevant companies hold a meeting twice a year to develop curriculum and training materials together. During that meeting, the school receives the companies’ demanded skills in the relevant fields. Particularly, for the customized classes that are created based upon the company’s request, the teachers and the representatives from that specific company develop curricula together, and 60% of the program is required by the company.

**Conclusion**

This paper reversely examined the relationship between outcomes and premise factors by selecting a high-performance school (the high graduate employment rate) and the impact of the premise factors on school outcomes. The logic is that if this high-performance school demonstrates that it possesses these factors and that they have close relationships with the outcomes, then we can conclude that these premise factors are likely to raise employment rates.

The first research question is whether or not the school possesses these factors. The findings strongly support that Yeungjin has adequate resources, relevant programs, excellent management, and well-established school-industry linkages. The second question is whether or not the above premise factors impact school outcomes. Findings suggest that these factors both directly and indirectly influence Yeungjin’s graduate employment rate. According to the survey and interview these four factors all increase student employability, making graduates more likely to land a job. The third question is which of these factors is the
determining factor that contributes most to enhancement of school performance, in what context, and how can this factor be strengthened.

In Korea’s case, industrialization, education, economic growth, and the labor market are closely related. Economic policy continues to guide educational policy based on the assumption that education, although not sufficient, is a necessary factor contributing to the country’s economic growth by providing adequately skilled workers to industry. During the 1970s, because the country shifted from a lighter to a heavier manufacturing industry, it required a different type of labor force, including skilled technicians and experts. Accordingly, the government expanded technical and vocational education to meet demand for skilled workers in the heavier manufacturing industry (Zang, 2009; Kim, 2000; Lee et al, 2012). During this decade vocational schools grew by 24.5%.

Since the late 1970s, Korea’s strategic industry has shifted to more skill-intensive industries, such as the electronic and car industries. To meet this demand, higher education (both 2-year college and 4-year university) was greatly expanded to train skilled workers for this new type of industry (Zang, 2009; Kim, 2000). The expansion of secondary and higher education is illustrated in Graph 1 (Lee, 2011; Lee, 1993; Kim, 2000). Then, between 1985 and 2007, there was sudden and rapid expansion of 4-year universities. This is because as technological development changed the industrial structure, demand for highly skilled workers (e.g. managers and experts) who had completed higher education increased (Lee, 1993).

In addition to the economic change, expansion of 4-year universities was also influenced by a strong demand for higher education from the new middle class who had accumulated their wealth during industrialization (Lee, 2011). A 1991 survey conducted by KEDI showed that 41.7% of parents believed that people who do not attend university “are not respected in our society.” Twenty-one percent of parents thought that “these people have limited options in choosing their occupation” while 12.5% believed that “these people are paid less than higher education graduates” (Kim, 2000).

However, most teachers in Yeungjin agreed that regardless of these economic and social changes throughout time, the most important factor contributing to the school’s success is well-established management and leadership, because it directs all resources, including human resources, towards achieving the goal of enhancing school performance. Some teachers pointed out a leader who supports the teachers, while others pointed out the teachers’
ownership as being the most important factor for success. Both indicate that well-established management is based on everyone working together to achieve a shared vision. When Yeungjin faced outside challenges, the President and faculty members united to overcome them. The leader strongly supported the teachers’ suggestions on transforming the program from supply-driven to demand-driven, and the teachers made efforts to establish school-industry connections.

Under circumstances of rapid labor market shifts, the management system emerges as the most important factor not only contributing to high graduate employment rates but also impacting the more fundamental issue of Yeungjin’s survival in the training market. The school’s flexible management system enables it to reform its system in response to changes, including reorganizing structure, altering curriculum, changing teacher recruitment and payment policies, and strengthening school-industry cooperation. Also, an efficient management system enables the school to optimize resource use. Teachers recommended that leadership is central to a well-established management system. Under leadership that provides an overall direction, management utilizes all resources efficiently to achieve goals and support faculty members in working at their maximum level with a strong sense of ownership. Accordingly, management emerges as the key factor in increasing Yeungjin’s internal and external efficiencies and therefore producing the best outcomes, including high graduate employment rates.