CASE STUDY OF AN EXCELLENT TVET INSTITUTION¹:

Yeungjin Junior College, Daegu, South Korea

By

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¹ This case study has been conducted with the support of 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 model for TVET reforms in the EAP region.
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Introduction

Context and Purpose of the Study

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 TVET systems to guide schools towards demand-driven education and training; and in order to do so, they have researched the best method of restructuring their respective systems.

In this context, the East Asia Education team has embarked on an in-depth study of “Excellent Institutions” by selecting particular outstanding cases in select countries of East Asia in order to research (1) which factors contribute to a particular school’s successful outcomes; (2) how the school developed its demand-driven system; and (3) how the school utilizes finite resources to enhance school performance.

Therefore, the purpose of this study is to provide policy makers with empirical evidence that will be used to develop new policies that 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 in regards to TVET policies and practices; (3) engender a productive dialogue on the improvement of TVET relevance among our client countries.

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 Questions**

By conducting an in-depth analysis, this study seeks to find (1) whether or not premise four 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.

**Conceptual Framework**

**Figure 1: The Theoretical Framework**

![Diagram showing the theoretical framework with resources, teaching, management, and linkages with enterprises]

*Source: author’s construction*

**Research Method**

**The Rationale**

We will reversely examine the relationship between outcomes and premise factors by selecting a high-performance school (purposely selecting the sampling procedure) and the impact of the premise factors on graduate employment rates. The logic is that if this high-performing school demonstrates a showing of all these factors, then we can conclude that these premise factors are likely to raise employment rates.

**Case Selection**

The following shows three areas of consideration for the case selection process in our study.
First, as we are reversely testing the factors that are assumed to be contributing to a school’s success, we will select excellent schools with exemplary outcomes. Second, we will select the school at both the secondary and post-secondary levels within the same sector. In this way, we can more easily compare how different levels of skilled graduates are absorbed into the labor market within the same sector, thereby investigating whether “different levels of skills” is one of the ecosystem factors positively impacting school excellence. Also, this analysis may provide some suggestions on how to attract more students in vocational high school, especially to countries where students’ vocational track preferences are low. Third, we will select schools that provide skills training for sectors that may best represent the select country’s economy. In this way, lessons learned from the case study can be tailored to meet the specific needs of a country that may be considering introduction of TVET training for the same sector.

In Korea’s case, Yeungjin was selected, as it is best known for producing mid-level technicians for the manufacturing sector.

Data Collection Process
The study will collect data from multiple sources to increase validity of the study. The sources include (1) archived information and quantitative measures; (2) a survey; and (3) interviews.

The Survey
The survey 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. For the students, we excluded 1st grade students, as they are assumed to have a lack of learning experiences with Yeungjin (Korea’s school year starts in the first week of March, and this survey was conducted during the second week of April). Six hundred ninety-three students out of the total number of 1,400 responded to the survey. For the faculty members, we excluded administrative staff, because they are assumed to have no knowledge of the school’s program. Twenty-three professors of the aforementioned majors responded to the survey.

With structured questions (category or ranking), the survey questionnaire 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.

The sample of the survey questionnaire is attached in Annexes 1 and 2. The questionnaire will be further developed with input from experts both inside and outside the World Bank and will also be tested for its measurement validity.

The Interview
In order to conduct an in-depth analysis, interviews were conducted with 10 students, 10 professors, and the President. The interview question types were structured to investigate the association between the premise factors and the factor most effective in enhancing school outcomes and how this identified factor can be improved. A sample of the interview questions is attached in Annex 3 and 4.
To maintain the validity and reliability of the study, we collected multiple resources to investigate the research question.

**About Yeungjin College**

**Yeungjin College’s Educational Purpose, Goals, and Strategic Plans**

Yeungjin’s educational purpose is to cultivate creative and highly proficient professional technicians by strengthening specialized skills via a demand-driven program and instruction. Its five education goals are:

1. Cultivating professional technicians who can be 21st century leaders
2. Educating the students to become professional technicians with clear vocational goals
3. Developing and providing a customized education to the students
4. Helping the students prepare for globalization by providing information technology and foreign languages
5. Educating students on humanity, e.g. ethics, diligence and consideration for others by offering voluntary social services

In order to achieve the above goals, Yeungjin has developed strategic plans; the details for each strategy are illustrated in Table 1-4.

**Table 1 Strategy1: Establishment of a Top-Class Education System**

<table>
<thead>
<tr>
<th>Admissions Competitiveness</th>
<th>Increase the quality of applicants by strengthening the admission process</th>
</tr>
</thead>
<tbody>
<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 their job placement by strengthening industry-college cooperation</td>
</tr>
</tbody>
</table>

**Table 2 Strategy 2: Innovation of Administrative and Financial Structure**

<table>
<thead>
<tr>
<th>Management System</th>
<th>Cope with rapid changes in educational circumstances by reforming the management system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Provide student-focused administrative services by retaining competent employees</td>
</tr>
</tbody>
</table>
Diversification of Resources | Lower dependence on tuition and fees by finding other resources

### Table 3 Strategy 3: Construction of Future-oriented Educational Infrastructure

| Industry-College Centered Techno Valley | Play a vital role in local economic growth by facilitating an industry-college cooperation |
| Education-Centered Hub LLL | Become a Life Long Learning hub by providing training services to SMEs for their employees |

### Table 4 Strategy 4: To Foster International Competitiveness

| Internationally-associated Customized Education | Meet demands from oversea Korean companies by expanding customized education |
| Support System for International Students | Institute a system that supports international students by providing Korean language, student life, study guides, career counseling, etc. |
| Global Education Programs | Cultivate global leaders by developing programs that aim to improve international work skills |
| Global Education Support System | Create an educational environment that caters to international students by meeting international tertiary education standards |

Source http://www.yjc.ac.kr/CmsHome/MainDefault.jsp

### Employment Rate

According to the College Sustainability Index, since 2012, Yeungjin College has ranked high in the area of graduate employment.

The College Sustainability 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. As for the method, the Index evaluates performance in five areas: education, research, job placement, management, and convenience/fairness/communication among 132 Korean colleges nationwide. Out of a total 1000 points, 300 points is allocated to education and job placement, respectively; 200 points to management; 100 points to research; and 100 points to convenience/fairness/communication. For example, Yeungjin received the highest score of 777.3 points among 132 colleges in the 2012 Index: first in job placement, second in the management, and third in the education.

Especially for job placement, according to “Job Placement Statistics of Higher Education Institution Graduates 2012”, published by the MoE, Yeungjin ranked in the top 79.3 percent in job placement among colleges retaining more than two thousand graduates. This data is widely
utilized, because it shows the actual number of employees by calculating the number of graduates who have been registered for employee insurance within the country, as well as the number of graduates who have gained employment overseas. This is also a key index for the MoE to fund various university projects, such as the Education Competence Enhancement Project.

**Figure 1: Job Placement Statistics of Higher Education Institution Graduates 2012**

![Job Placement Statistics](http://www.yjc.ac.kr/CmsHome/MainDefault.jsp)

**Quality of Employment**

In addition to the rate, Yeungjin has placed emphasis on improving the quality of its graduates’ job placement by helping them gain employment with prospective companies. For the last five years, the accumulated number of job placements in major domestic and overseas companies is 3,585 graduates. In regards to domestic companies, 841 graduates were employed at large companies in 2012, such as Samsung and LG. Overseas placements included 325 graduates that were employed at prospective companies of Japan, China, USA, Australia, Saudi Arabia, and New Zealand. The details are described in Figure 2.

**World Class College (WCC) Nomination**

In 2011, Yeungjin was nominated as one of seven WCCs by the MoE, whose aim is to cultivate Korea’s best technology masters in colleges. This is a meaningful award as WCC is a comprehensive evaluation that assesses college infrastructure, educational performance, financial integrity and the satisfaction rate of industries with education. Therefore, WCC refers to the leading colleges that can respond quickly to changes in technology, sustainable growth and international vocational education competencies. For the next five years, Yeungjin College plans to cultivate 3,000 skilled workers and attract about 200 small-and-mid-sized enterprise research institutes.
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 these factors [(1) adequate resources; (2) relevant programs; (3) an effective management system; and (4) school-industry linkages], then we can conclude whether or not these premise factors are likely to impact employment rates, and in what direction.

**Figure 2: Accumulated number of job placements in domestic major and overseas companies between 2010 and 2015**

![Image of job placements]

Source http://www.yjc.ac.kr/CmsHome/MainDefault.jsp

**Findings**

**Factor 1: Adequate Financial and Human Resources**

Yeungjin retains various types of expensive high-tech equipment and machines, worth over USD 178 million. These machines include a super-high speed electron beam machining apparatus, a high-speed rapid prototype, a 3-dimensional check, etc., which are not possessed by most colleges and SMEs. The Bank conducted the survey and interview with the teachers and students to find out whether or not Yeungjin has adequate financial and human resources to enhance student employability.
The Teachers’ Perception
During the survey, three areas were assessed by the teachers: the school’s financial resources and facilities; teachers’ recruitment standards and in-service training; and the support system for employment. The results of the survey support the fact that the school retains both adequate financial and human resources.

As for the school’s financial resources, 100% of the teachers responded that the school provides adequate financial support to students, and 96% responded that providing financial support plays a primary role in attracting talented students. Also, for the assessment of school facilities, 65% of the teachers answered “excellent,” 57% answered “excellent” for equipment maintenance, and 56% answered “excellent” for retaining full and updated equipment (Graph 2).

Graph 2: Facilities and Equipment

Source World Bank, 2015
Second, in the area of human resources, the teachers were asked about teacher recruitment and in-service training. For teacher recruitment, we asked the teachers, which is the most important criterion in recruitment of a competent teacher among (1) Minimum academic qualifications (2) Minimum years of industry or work experience (3) Minimum years of teaching experience (4) Other. 35% of the teachers responded that “Minimum years of industry or work experience” is the most important criteria (Graph 3). Furthermore, 91% of the teachers responded that Yeungjin College’s recruitment standards for teachers/instructors are adequate enough to administer updated skills to students. Also, 100% of the teachers believe themselves to be competent teachers and to possess the required skill set for teaching.

Graph 3: Teacher Recruitment

![Graph 3: Teacher Recruitment](Image)

Source World Bank, 2015

In regard to in-service training, 91% of Yeungjin teachers completed in-service training as of April 2015, and the majority of the teachers (67%) took a formal type of in-service training, such as mentoring and leadership coaching (Graph 4). Among them, 29% of the teachers said that they received 20 hours of in-service training (Graph 5), and the majority (47%) received the training during summer vacation (Graph 6). Also, 67% answered that they received in-service training from companies contracted by the school.

Graph 4: Type of Training

![Graph 4: Type of Training](Image)
Graph 5: Number of Hours per Year

Source World Bank, 2015

Graph 6: Time of In-service Training

Source World Bank, 2015
Third, the teachers were also asked to assess the school’s support system for student employment. 91% of the teachers 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 their career plans.

Followed by the survey, an in-depth interview was conducted with ten teachers, and all responded that the school has adequate financial and human resources to produce competitive school outcomes.

In regard to facilities and equipment, the teachers pointed out the benefits from participating in the government projects that support SMEs, such as Techno Park. The school has been nominated as a learning and skill hub in the region for several government projects that support SMEs for boosting the local economy. To meet the purpose of creating a SMEs consortium, the government selected Yeungjin as a skill provider by utilizing its campus and human resources (Yeungjin’s faculty members) in exchange for providing expensive machines and equipment to be shared by SMEs. The teachers said that through this process, the school was able to secure the best equipment in the region and upgrade the training facilities.

In regard to human resources, three themes emerged: recruiting teachers with industry experience, appointing an advisor who works closely with his or her students, and maintaining a good circle.

First, the teachers pointed out Yeungjin’s teacher recruitment standards. The school recruits teachers from industry, particularly those who hold middle or high level positions at large companies, via public contest. The recruitment standards also require at least a master’s degree, but they do not require previous research work. In fact, the teachers can publish research papers after joining Yeungjin. The main purpose of this recruitment standard is to secure faculty members who are able to develop industrial demand-driven programs as well as strengthen school-industry cooperation. For the former, these instructors are able to develop relevant curriculum and training materials, as they know the types of skills and knowledge demanded in
the current labor market. At the same time, they respond to the changes in the labor market quickly and flexibly by continually updating their training materials, and if necessary, they can change the courses. For the latter, these instructors have advantages in developing a MoU with companies as they have their own networks with companies. In fact, all teachers agreed that hiring instructors from industry has a direct impact on increasing the employment rate. Based on their experience with companies, these instructors are able to inform students of the types of certificates and courses needed for their wishful companies. Also, the teachers are able to help the students gain employment with their own network companies.

Second, in Yeungjin, there is an advisor for each class who is responsible for about 30 students. The advisor’s duties and responsibilities are similar to those of a homeroom teacher of Busan Meister High School. Via a one-on-one meeting, each advisor works closely with their respective student on developing their career plans, providing company employment information and job opportunities. They teach job ethics classes as well to help students prepare for their future jobs. In addition to career counseling, they also support students in developing their academic skills.

Third, the 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 SMEs’ support projects. This government support helps the school retain excellent facilities and strengthen school-industry cooperation. Then, the school is able to secure competent students and teachers and, again, produces the best outcomes.

The Students’ Perception
During the survey, the students were also asked their perception of the school’s resources. In regard to financial support, 83% of the students said that they receive at least some level of financial support to cover course fees, residential costs, academic materials, etc (Graph 7).

Graph 7: Extension of Financial Support
Source World Bank, 2015

The students assessed the school’s retention of adequate facilities and equipment. 67% of the students are either satisfied or very satisfied with classroom conditions; 58% are either satisfied or very satisfied with computer labs and access; 60% are either satisfied or very satisfied with library; 37% are either satisfied or very satisfied with recreation facilities; and 64% are either satisfied or very satisfied with practical training resources (Graph 8).

Graph 8: Facilities
In regard to teacher competence, 71% of the students said they are either satisfied or very satisfied (Graph 9).

**Graph 9: Teacher Competence**

Also, in regard to the support system, 63% of the students received career counseling, and among them, 92% said that the counseling helped them navigate their career plans in order to secure a job (Graph 10). In general, 66% of the students are either satisfied or very satisfied with general school life.

*Source World Bank, 2015*
In addition to interviewing teachers and staff, we conducted an in-depth interview with ten students.

In regard to facilities and equipment, the students agreed that enough machines and equipment are available to them for their practical training; for example, an average of 1 - 1.5 students can utilize the training materials and equipment for practice. According to them, they are in fact impressed with Yeungjin’s training facilities, because some of the expensive machines are not available in other universities. So, they never feel that they cannot take practical training due to a shortage of machines or equipment. For example, the students from the CAD/Mechanical Design Course of the School of Mechanical Engineering said that they are able to acquire the latest skills, because the school provides the computer programs needed for obtaining those skills. The students reported that even though companies currently use the latest CAD program, most schools do not provide it due to its high costs.

All interviewed students agreed that their teachers are competent. Like the teachers, the students also concurred that teachers should have industrial experience. According to the students, based on their work experience with large companies, the teachers are able to design industrial demand-driven, customized programs, teach the most relevant skills, and develop useful training materials. Based on their experience, the teachers continually give the students tips for employment preparation. The teachers guide the students in developing career plans and provide company-specific information. The students said the teachers also assist directly in connecting students with companies within their respective networks.

Second, the students said that the teachers update knowledge and skills in their fields continually as they maintain relationships with companies. The teachers are able to develop their own training materials for the classes and update them. One student mentioned that some graduates who are currently in the industry said that they still use the school training materials for their
current job. In addition, the students said the teachers have excellent teaching skills by teaching them from basic to advanced levels within a well-designed learning block.

Third, as the teachers mentioned, the students said their advisors assist more with school life, especially with career plans. All stated that a one-on-one meeting with an advisor is very helpful in solidifying their plans, e.g. deciding occupations, jobs, and future companies of employment. The advisor also continually provides them with company specific information and the certificates necessary for applying to a particular company.

Fourth, the 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, the teachers find places for in-company training and even jobs for the students.

Most importantly, the students said that their teachers care about and for individual students. The teachers support any late learners by using personal time after class and on weekends. For example, one student said that because he studied at an academic high school, he did not have much understanding of engineering during the first semester of his 1st year; however, the teachers helped him improve his understanding via one-on-one meetings. Other students who studied at vocational high schools had similar experiences, receiving teacher support after class in their physics and math classes. The students all agreed that their teachers are available anytime to those who need further assistance. The teachers also provide special weekend lectures and lectures during vacation.

Factor 2: Relevant Program

Departments

School of Mechanical Engineering:
The department includes three sub-majors:

Sub-major 1: CAD/Mechanical Design Course provides knowledge and skills for CAD needed to design machines like semiconductor equipment, automobiles, and ships. The students will be able to design 2D or 3D models.

Sub-major 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.

Sub-major 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 the companies, including LG Display Class, Refrigeration and Air-conditioning Class, Japanese Automobile Design Class, and Shipbuilding and Ship Engineering Class, etc.

The graduates from this major can obtain certificates in the areas of AutoCAD, 3D CAD, CNC/CAM, Precision measurement, Machine design, Press mold, Production automation, Equipment maintenance, Air-Conditioning and Refrigerating Machinery, Shipbuilding, and Assembling. Affiliate companies include Samsung Electronics, Samsung Electro-mechanics Co., Ltd, LG Display, Dusan, Hyundai, POSCO, SK Hynix, Daewoo Shipbuilding & Marine Engineering, Hyundai Motor, Hyundai Heavy Industries Co., Ltd.

School of Electronic and Info-Communication
The department includes three sub-majors:

Sub-major 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.

Sub-major 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.

Sub-major 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.

The department operates 13 customized classes based on the agreement with the companies, and these include the Electronic Display Technology Class, Mobile Embedded Class, Info-communication Technology Class, Semiconductor Processing Class, etc.

The graduates from 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 Electron Engineering
The department includes two sub-majors:

Sub-major 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.

Sub-major 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.

The department operates 11 customized education agreement classes, including the LG SILTRON Class, STATSChipPAC Korea Class, MilinetSolar Class, LS Cable, KENCA (Korea Engineering & Consulting Association), etc.

The graduates of this major can obtain certificates in the areas of 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
As to the results of the survey with the teachers, we investigated three areas: The relevance of the program, competence of the students, and articulation. 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 (Graph 11). Also 57% of the teachers strongly agree that the school offers high quality programs.

**Graph 11: Relevance of the School Curriculum**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Neither agree nor disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither agree nor disagree</td>
<td>1</td>
<td>4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>35%</td>
<td>61%</td>
<td></td>
</tr>
</tbody>
</table>

However, 57% of the teachers responded that their students need to take additional outside training to be employed (Graph 12).
Graph 12: Students need to take additional outside training to be employed

In regard to the competence of their students, 83% of the teachers believe their students are competent and 52% strongly agree with the fact that the school is attracting highly competent students (Graph 13).

Graph 13: 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.

In regard to the articulation, 83% of the 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 this program helps students advance to higher education.
The interview followed, and three themes emerged in terms of the program: the importance of developing a demand-driven program, having a flexible curriculum, and balancing theory and practical training.

First, the teachers agreed that Yeungjin’s programs meet industrial needs by pointing out its demand-driven programs. According to them, both the teachers and representatives from the companies of each sub-major design curricula together via an annually held Committee meeting. Then, based on the companies’ needs, the curriculum is continually updated. More specifically, the teachers mentioned their customized classes. Each department has several customized classes that have been created based upon the request from a specific company: 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. For example, an LG Display Class was created based upon the demands from an LG Display: upon the agreement between the school and the LG Display on employment, the program is specifically designed to produce skilled workers for the company. Therefore, the students obtain more specific skills than transferable skills (about 60% of the company demanded skills), that enable them to work immediately for the company upon their graduation.

Yeungjin first designed this customized program in Korea, and the teachers shared their experiences in initiating this program in 1995. According to them, the creation of the customized program was possible, because it served the companies’ interests in lowering costs for retraining new employees. Yeungjin’s teachers knew that the companies were not satisfied with the schools’ training as they had to retain new employees upon hiring. So, the teachers approached the companies to learn their needed skills by conducting a series of surveys with specialists of those companies and inviting them to the school for further interview. Then, the school suggested the companies develop curricula together in the form of the customized program in exchange for the schools supplying skilled workers to these specific companies. The companies began to take interest, because they knew that new employees who have already obtained company specific skills while in school would lessen retraining costs.

Second, another advantage of Yeungjin’s program lies in its flexibility. The teachers continually review and update the programs to respond to rapid industry changes. Also, even for the customized classes, the current ones can be closed if there is low demand, and a new customized class can be created if there is a high industry demand. This opening and closing of the class is all based on the assessment of the companies’ needs and requests. Also, the teachers pointed out that feedback from alumni who are currently working at prospective companies is useful to updating the program.

Third, the teachers pointed out the importance of balancing theory and practical training, as they believe that a 2-year college is not a training institute that mainly focuses on practices. It is a school that needs to provide theory and basic knowledge of each field as well as the humanity of education. However, at the same time, the school also needs to provide adequate practical training to help students prepare for future jobs. For example, one teacher shared his own work experience upon his graduation from a top ranking university by 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 the school.” Therefore, he believes that the school should provide adequate practical training to students, in addition to theory. However, in reality, two years of training cannot provide all the skills and knowledge needed by a company; the school needs to focus on basic and transferable skills in their field of advantage.

In general, the teachers agreed that the provision of relevant knowledge and skills directly increases 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 special field. The teachers also pointed out that the school should provide the most useful skills. For example, Yeungjin’s students are likely to be employed because they can utilize the CAD program that is currently used in the industry. Not many schools offer this course, because they do not have this computer program.

The Students’ Perception
Through the survey, the students also assessed the program. First, only 9% of the surveyed 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 (Graph 14) and 71% expect to receive more than USD 20,000 annual income (Graph 15).

Graph 14: Upon graduation, please specify your work level
Graph 15: What is your expected wages or salary?

Second, as to the question of certifications, 59% of students hold certifications, and among them, 38% hold one certificate, 25% hold two, and 19% hold three (Graph 16).

Graph 16: How many certifications do you have?

Third, in regard to the school program, 54% of the Yeungjin students said that they are either satisfied or very satisfied with the program. About half of the total students said that they receive more than 10 hours of practical training per week, while another half said that they take less than 10 hours (Graph 17).
In regard to the question of whether or not they receive additional training, aside from in-school practical training, 38% said yes, and among them, 46% said they take below 10 hours and 26% said between 11 and 15 hours (Graph 18). Furthermore, 46% of the students said they are planning to receive additional training from a training institute after graduation (Graph 19). However, overall, 69% believe that the school is preparing them adequately, skill-wise, to find a job.
Graph 19: How many hours per week do you train?

Following the survey, ten students were selected for an in-depth interview in which they were asked to assess the program. First, they all 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 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. Then, within each of their respective sub-majors, the students are divided into the customized classes according to their competency level. The remaining students, who are unable to attend the customized classes, attend regular classes. 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 a particular certificate for a certain job application, aside from the regular courses, they feel it’s necessary to take additional courses to obtain these certificates.

Second, the students stated that they are obtaining the latest and most relevant skills by referring to their instruction on the latest CAD computer program that is currently used in many major companies within their respective fields. The students said that the possession of this specific skill increases their self-confidence to the level of a highly demanded skilled worker in the current market. Also, the students said that the training materials developed by the teachers are very helpful. The materials are substitutes that easily explain the utilization of machines, equipment, and computer programs. The materials also reflect the current skills that alumni use in their work places.

Lastly, to the question of creativity, the students said that their creativity improved by taking the Capstone course. During the class, the students organize into groups, select a topic, develop an
idea based on free debates and discussions, present their ideas, produce a product, conduct a survey for market value, and present their final product on graduation. The teachers support them in finding necessary materials and share sound advice. According to them, during the process, their ideas are developed, and most importantly, their self-confidence increases.

**Factor 3: Management**

Yeungjin College’s uniqueness in terms of school organization is its emphasis on the school-industry linkage by instituting a separate “Industry-College Cooperation Corp” division. And under this division, there are four departments: Industry-College HRD Center, Office of Industry-College Convergence, Daegu Techno-Park Yeungjin Branch Office and the Business Support Center. The chart is illustrated in Diagram 3.

**Diagram 3: School Organization**

![Diagram 3: School Organization](image)

**Teachers’ Perception**

During the survey, the teachers assessed Yeungjin’s leadership and the management system. 56% of the teachers strongly agreed that the school leaders execute the school’s guiding principles with clarity (Graph 20), and 48% of the teachers said that the school has shared its vision with its faculty members (Graph 21). Furthermore, 57% of the teachers strongly agree that their school leaders are consistent with their words and actions.
Graph 20: My school leaders execute the school’s guiding principles with clarity

Graph 21: The school has a shared vision among faculty and staff

In regard to the school leaders’ consideration for employees, 52% of the teachers responded that their school leaders encourage collaboration by building trust among faculty members (Graph 22); 52% strongly agreed that their leaders encourage self-determination and developing teacher competence (Graph 23); and 52% strongly agreed that their school leaders recognize their contribution by showing appreciation (Graph 24).
Graph 22: My school leaders encourage collaboration by building trust among faculty members

Graph 23: My school leaders encourage self-determination and developing teacher competence
Graph 24: My school leaders recognize my contribution by showing appreciation

To the question of the school leaders’ future preparation, 61% of the teachers strongly agreed that the leaders envisage the future and consistently look for new and innovative products/processes (Graph 25) and 65% responded that the school has the capacity to deal with both anticipated and unexpected challenges/risks (Graph 26).

Graph 25: My school leaders envisage the future and consistently look for new and innovative products, processes, and services
In regard to the question of the relationship with the leaders as well as with other teachers, 48% of the teachers said their relationship with the President of Yeungjin is excellent, and 39% said their relationship with other teachers is excellent.

During the in-depth interview following the survey, the teachers pointed out the management’s contribution to Yeungjin’s high graduate employment rate. According to them, under a 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 placed an emphasis on 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 their competitiveness against both 4-year universities and in-house universities. Like other 2-year colleges, Yeungjin has faced the challenge of maintaining adequate numbers of students.
According to them, 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 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. The reform process was as follows:

The 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.

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. Next, 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.

However, even after entering the normal stage, school leaders continually prepare for the next challenge, decreasing school age students due to the fast aging process in Korea. So, Yeungjin has invested in school advertisement since 1995; in fact, one faculty member said that even though advertising had now become the norm, during the 1990s, most schools did not feel self-advertisement was necessary. Yeungjin was the first college to advertise itself in 1995.

Second, the teachers agreed 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, such as the LG Display Class, strengthening school-industry cooperation by establishing MoUs, and conducting administrative work is reflected in the teacher’s assessment that is linked with immediate rewards and incentives. 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. The teachers pointed out that these incentives encourage teachers to produce better outcomes.

Regarding the use of financial resources, the school utilizes machines and equipment from the Chilgok campus (2nd campus) for both the students and SMEs. The students of most customized classes are staying at the dormitory on the Chilgok campus and access the best training facilities. At the same time, as Yeungjin is the center of SMEs consortium, their machines and equipment are shared by the SMEs. Therefore, the teachers said that the machines are utilized efficiently, because they are used to train Yeungjin students and the SME employees as well as to provide skills support to the SMEs.

**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.

**Diagram 4: The Customized Education System**
Since Yeungjin’s success, the MoE has expanded the customized education system to other colleges and universities. For example, between 1999 and 2008, the MoE funded $153,641,000 both 2 and 4-year colleges via the Financial Support Program in a Specialized Area, such as the Education & Human Resources Policy Committee, President’s Consultative Body, which recommended that 4-year universities implement Customized Education. In 2003, Yeungjin, who initiated this system, was introduced at the Committee of Policy Coordination, chaired by then-President Roh.

**A Skill Hub in the Region**

Yeungjin has strengthened industry cooperation by participating in several government projects. 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 criterion. 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.

Another example is the “Technopark Project” that has enabled the school to establish the “Total Techno Solution System” (TTSS). Via this system, the school supports the SMEs from product design/development and prototype production to marketing. The process of the system is illustrated in Diagram 5.

**Diagram 5: Total Techno Solution System (TTSS)**
**Teachers’ Perception**

The teachers’ survey reflected that 100% believe that a school should build a formal partnership with companies and that their school has built a successful partnership with companies in order to enhance school outcomes e.g. graduate employment rate.

During the in-depth interview, the teachers all agreed that Yeungjin has a well-established formal school-industry linkage.

For resources, the companies provide scholarships, in-company training for students, instructors and special lectures. Also, as a hub of the SMEs consortium in the region funded by the government, the school has actively worked with the SMEs by sharing both facilities and human resources. For example, the teachers provide technical assistance to the SMEs, and at the same time, the 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.

However, all teachers disagree with the idea of collaboration between the school and the companies as a form of the Committee. According to one teacher, Yeungjin is a privately owned school like most other 2-year colleges. Without private ownership, Yeungjin would not be able to survive during difficult times. They believe that even a management committee will not work, because its members lack a strong sense of ownership, and its policies will be inconsistent.

**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 possess these factors and has 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. The findings suggest that these factors both directly and indirectly influence the Yeungjin’s graduate employment rate. According to the survey and interview conducted with both the teachers and students, these factors increase the students’ employability, which leads to a high chance of being employed, particularly with prospective companies.
The third question is which of these factors is the determining factor that contributes most to the 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. Table 5 summarizes periodic key industry highlights and their corresponding educational policies (Zang, p. 87, 2009; Lee et al, 2012; Kim, 2000).

<table>
<thead>
<tr>
<th>Economic Policy</th>
<th>Educational Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950s Aid economy</td>
<td>Provision of primary and middle schools</td>
</tr>
<tr>
<td>1960s Export oriented, Labor-intensive, light industry</td>
<td>Expansion of primary and secondary level; expansion of secondary level vocational education</td>
</tr>
<tr>
<td>1970s Export oriented, heavy manufacturing industry</td>
<td>Expansion of vocational secondary and post-secondary level education; emphasis on engineering department, control for the number of university students</td>
</tr>
<tr>
<td>1980s Export oriented, heavy manufacturing industry; electronic and car industry</td>
<td>Expansion of higher education (4-year University); emphasis on vocational college</td>
</tr>
<tr>
<td>Since 1990s ICT, banking, Service, bio industry</td>
<td>Emphasis on ICT and bio tech education</td>
</tr>
</tbody>
</table>

Source Zang, p. 87, 2009.

During the 1970s, because the country shifted from a lighter to heavier manufacturing industry, it required different types of labor force, such as skilled technicians and experts. Accordingly, the government expanded technical and vocational education to meet the demand for skilled workers in the heavier manufacturing industry (Zang, 2009; Kim, 2000; Lee et al, 2012). For example, the growth rate of vocational schools’ was 24.5% during this time. In regard to the number of vocational high school students, the number increased from 42.3% in 1975 to 45% in 1980. Also, students in technical schools increased from 25% in 1970 to 26.4% in 1980 (Lee et al, 2012).

Since the late 1970s, Korea’s strategic industry has shifted to more skill-intensive industries, such as the electronic and car industries, and 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 27 (Lee, 2011; Lee, 1993; Kim, 2000). The Secondary Education GRE increased from 48.5% in 1975 to 88% in 1985 and to 92.4% in 2010. The GER for higher education was 7.1% in 1975, but the rate had dramatically increased from 30.1% in 1985 to 70.1% in 2010 (Zang, 2009).
Then, between 1985 and 2007, there was the sudden rapid expansion of 4-year universities in Korea. This is because as the industrial structure changed due to technological development, demand for highly skilled workers (e.g. managers and experts) who had completed higher education increased in the labor market (Lee, 1993).

**Graph 27: Gross School Enrollment Ratio: Secondary and Higher Education**

![Graph showing school enrollment ratios](source)

In addition to the economic change, the 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). This is evidenced by a survey conducted by KEDI in 1991 among parents and students to question why they want to attain higher education. It showed that 41.7% of parents believe that people who do not attend university are not respected in our society. 21% of parents believe that these people have limited options in choosing their occupation. 12.5% believe that these people are paid less than higher education graduates (Kim, 2000). Another survey also showed that the most important factor contributing to making the decision to attain further education is whether or not it brings advantage to future career (66.3% of total respondents). Chun et al (1987), Bea et al (1987), and Lee et al (1981)’s survey all showed that the reason for attaining 4-year university education is to get a prestigious job (Kim, 2000).

However, most teachers in Yeungjin agreed that regardless of these economic and social changes throughout the time, the most important factor contributing to the school’s best outcome 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. But both indicate that well-established management is based on both sides’ effort to work together and share the same vision. In Yeungjin’s case, when the school 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, as they believe that this linkage is the pre-condition for developing a demand-driven program.
Furthermore, under circumstances of rapid labor market shifts, the management system emerges as the most important factor not only contributing to the best outcomes but also impacting its survival in the training market. The flexible management system enables the school to reform its system to react to changes, including reorganizing the structure, changing curriculum, changing teacher recruitment and payment policies, and strengthening school-industry cooperation. For example, Yeungjin changed their attitude in working with the companies from receiving general advice to actively reflecting their demands in the curriculum. Also, an efficient management system enables the school to utilize its resources at the maximum level as Yeungjin’s case illustrated.

The 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 the goals and support the faculty members to work at their maximum level with a strong sense of ownership. Depending upon management, the school can increase its internal and external efficiencies to produce the best outcomes.
Annex 1: Questionnaire for Teachers

Resources

1. Do you think the school provides adequate financial support to your students?
   • Yes => go to Q1.1
   • No

2. Do you think providing financial support plays a primary role in attracting talented students?
   • Yes
   • No

3. Please respond to the following phrases utilizing a response from the ratings below. Select the rating that most clearly and honestly reflects your opinion:
   • School building conditions, including the practical training facility
   • Equipment maintenance
   • Retaining full and updated equipment

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Bad</th>
<th>Poor</th>
</tr>
</thead>
</table>

4. Does the school have a support system to assist students with their career plans (e.g. a job service center)?
   • Yes => go to Q3.1
   • No

4.1. Please rate the existing support system:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Bad</th>
<th>Poor</th>
</tr>
</thead>
</table>

5. Do you assist students in career development?
   • Yes
   • No

6. In your opinion, which is the most important criterion in recruitment of a competent teacher?
   • Minimum academic qualifications (certificates, diplomas, and degrees)
   • Minimum years of industry or work experience
   • Minimum years of teaching experience
7. Do you think that your school’s recruitment standards for teachers are adequate enough to select competent teachers who will improve the employability of the student population?
   • Yes
   • No => go to Q 6.1

Please explain why the standards are not adequate ______________________

8. Did you complete in-service training?
   • Yes => go to Q7.1-7.3
   • No

   8.1. Select type(s) of training.
   • Seminars, workshops, and conferences
   • Formal courses
   • Formal mentoring and leadership coaching
   • Other

9. How many hours per year did you complete?
   • Less than 10
   • 10 -15
   • 16 - 20
   • More than 20

10. Did you receive the training from companies contracted by the school?
    • Yes
    • No

11. Are you a competent teacher; do you possess the required teaching skills set?
    • Yes
    • No => go to Q.11.1

   11.1. What missing skills would increase your competence?
    • More academic knowledge
    • More practical training
    • More work experience
    • More teaching experience
    • Other
12. Please rate your relationship with your students:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Bad</th>
<th>Poor</th>
</tr>
</thead>
</table>

13. All in all, does the school have adequate financial and human resources to produce competitive school outcomes (e.g. the graduate employment rate)?
   • Yes
   • No

Teaching

14. Please respond to the following statements utilizing a response from the ratings below. Select the rating that most clearly and honestly reflects your opinion:
   • The school curriculum (both academic and practical) reflects current industry demands.
   • The school offers high quality programs (both academic and practical programs).
   • My students need to take additional outside training to be employed.
   • My students enjoy their studies.
   • My students are highly competent.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

15. Does the school offer academic programs to students who want to continue their education/pursue an advance degree?
   • Yes => go to Q15.1
   • No

15.1. Do you think this program helps students advance to higher education?
   • Yes
   • No

16. All in all, does the school provide relevant teaching programs (including practical training) to produce competitive school outcomes (e.g. the graduate employment rate)?
   • Yes
   • No
17. Please respond to the following statements utilizing a response from the ratings below. Select the rating that most clearly and honestly reflects your opinion:
   • My school leaders have consistent school policies.
   • My school leaders execute the school’s guiding principles with clarity.
   • My school leaders are consistent about their words and deeds.
   • My school leaders envisage the future and consistently look for new and innovative products, processes, and services.
   • My school leaders encourage collaboration by building trust among faculty members.
   • My school leaders encourage self-determination and the developing competence of teachers.
   • My school leaders recognize my contribution by showing appreciation.
   • The school has a shared vision among their faculty and staff.
   • The school has the capacity to deal with both anticipated and unexpected challenges/risks.
   • The school is attracting highly competent students.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

18. Please rate the relationship
   • between you and the principal
   • between you and other teachers

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Bad</th>
<th>Poor</th>
</tr>
</thead>
</table>

Enterprise Linkages

19. Do you believe that a school should build a formal partnership with companies?
   • Yes => go to Q19.1
   • No

19.1. Please explain why __________________________

20. If your school does not have a formal partnership, what barriers will the school encounter in forming the partnership?
   • The school is not interested in a formal linkage.
   • The school desires a linkage but lacks the capacity.
   • The companies are not interested.
   • Other

21. Do you believe that your school has built a successful partnership with companies in order to enhance school outcomes e.g. graduate employment rate?
   • Yes
   • No
The Impact of Government Policy

22. To what degree has the government’s TVET policies impacted your school’s governance and policies?
   • All
   • Most
   • Some
   • None

23. Do you think Leadership at the National Level has consistent policies?
   • Yes
   • No

24. Do you think the government adequately articulates the policy on TVET collaboration (e.g. collaboration type, building methods, students’ rights) and develops laws for this?
   • Yes
   • No

25. Do you think the current Quality Assurance Framework (e.g. Standards, NQF) enhances school performance?
   • Yes
   • No

26. Do you think government financial mechanisms (e.g. incentives, vouchers) help enhance school performance?
   • Yes
   • No

27. Practically speaking, are your students readily able to advance their education e.g. from a community college to a four-year university or a technical/vocational high school to college?
   • Yes
   • No
Annex 2: Questionnaire for Students

1. Why did you select the technical or vocational track?
   - Lack of financial support from parents
   - Low school achievement (test scores, GPA)
   - Preference to be employed after secondary graduation
   - Parents’ advice
   - Teacher’s advice
   - Other

2. Why did you select this particular school?
   - My test scores and GPA
   - Personal interest
   - School’s high graduate employment rate
   - Parents’ advice
   - Teacher’s advice
   - Other

3. Do you have any certifications?
   - Yes => go to Q3.1
   - No

   3.1. How many certifications do you have?
   - Less than 4
   - 4 - 6
   - 7 - 10
   - More than 10

4. Upon graduation, do you plan to pursue an advanced degree?
   - Yes, Select desired level
     - 4-year university
     - Graduate school
   - No => go to Q4.1

   4.1 Upon graduation, do you plan to find a job?
   - Yes => go to Q5-6
   - No
   - What size companies interest you?
     - Large company
     - Upper middle size company
     - Small and middle size company

5. What position level are you seeking?
   - Entry level
• Low level skilled position
• Middle level skilled position
• High level skilled position

6. What is your expected salary? (USD)
• Less than 1,000
• 1,000 – 1,500
• 1,500 – 2,000
• More than 2,000

School Resources

7. Please respond to the following phrases utilizing a response from the ratings below. Select the rating that most clearly and honestly reflects your opinion:
• Classroom conditions
• Computer labs/Computer access
• Library
• Recreation facilities
• Practical training resources (facilities, equipment, machines, etc)
• School programs (curricular and after school programs)
• Career counseling
• Teachers
• General school life

<table>
<thead>
<tr>
<th>Very dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither satisfied nor dissatisfied</th>
<th>Satisfied</th>
<th>Very satisfied</th>
</tr>
</thead>
</table>

8. To what extent does a scholarship and/or any other financial support cover your course fees, residential costs, academic materials, etc.?
• All
• Most
• Some
• None

9. Do you receive career counseling?
• Yes => go to Q9.1
• No

9.1 Is the counseling helping you navigate your career plans?
• Yes
• No
10. How many hours per week do you receive practical training at school?
   • Less than 10
   • 11 – 15
   • 16 – 20
   • More than 20

11. Do you think the school is preparing you adequately, skill-wise, to find a job?
   • Yes
   • No => go to Q11.1 and 11.2
11.1 Did you receive additional training, aside from in-school practical training?
   • Yes => go to Q11.1.1
   • No
11.2 How many hours per week do you train?
   • Less than 10
   • 10 – 15
   • 16 -20
   • More than 20
11.1.1 Are you planning to receive additional training from a training institute after graduation?
   • Yes
   • No

Enterprise Linkages

12. Did you receive practical training from the company?
   • Yes => go to Q12.1-12.9
   • No => go to Q13
12.1 Did the school locate the company?
   • Yes => go to Q12.2
   • No => go to Q12.1.2
12.2 How did the school locate the company?
   • Via formal contract
   • Via informal relationship
12.1.2 How did you locate the company?
   • Parents and relatives
   • Friends
   • Advertisement
   • Other
   • What is the size of the company?
   • Less than 50 employees
   • 50- 100
   • 101-500
   • More than 500
12.3 Were you paid?
   • Yes => go to Q12.3.1
   • No
   12.3.1 What is the hourly wage? (USD)
   • Less than 5
   • 5 – 10
   • 11 -15
   • More than 15

12.4 Did you receive allowance for lunch and transportation?
   • Yes
   • No

12.5 As a trainee student, what were your tasks and duties? ________________

12.6 Do you think the in-company training is relevant to your studies?
   • Yes
   • No

12.7 Do you think the in-company training will help you find a job?
   • Yes
   • No

12.8 Please respond to the following phrases utilizing a response from the ratings below. Select the rating that most clearly and honestly reflects your opinion:

   • Overall in-company training program
   • Level of tasks and duties
   • Relevance of in-company training to your studies
   • Teachers and assessors for your training
   • Working environment
   • Number of hours per day
   • Duration of in-company training
   • Wages or allowance

<table>
<thead>
<tr>
<th>Very dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither satisfied nor dissatisfied</th>
<th>Satisfied</th>
<th>Very satisfied</th>
</tr>
</thead>
</table>

12.9. Have you ever left your position?
   • Yes => go to Q. 12.9.1
   • No
   12.9.1 Please provide a reason _____________________

13. What is the main reason you have not received in-company training?
   • I feel it’s necessary, but I cannot find a company
• I feel it’s necessary, but I don’t have enough time.
• I feel it’s necessary, but I don’t have the financial support.
• I feel it’s not necessary to my career goals.
• I am not interested.
• Other
Annex 3: Interview Questions for Teachers

1. Define “an excellent school”.

2. In your opinion, what factors are attributed to your defined “excellent school”? How and why do they impact school outcomes, e.g. graduate employment rates?

3. Do you believe that your school has adequate resources (both financial and human) to enhance the employability of your students?
   - If yes,
     o Please explain why
     o In your opinion, how do these resources impact school outcomes?
   - If not,
     o What challenges does the school face in maintaining adequate resources?
     o Why do these challenges arise?

4. Do you believe that your school’s resources (both financial and human) are efficiently utilized?
   - If yes, please explain why
   - If not, what are the challenges to maintaining internal efficiency?

5. Do you believe that the school provides the most relevant and updated skills to enhance student employability?
   - If yes, please explain why
   - If not, what challenges does the school face in developing relevant programs?

6. Do you believe that your school is a well-managed school in terms of leadership and governance?
   - If yes, please explain why
   - How does it impact school outcomes?
   - If not, what challenges arose and why?

7. Do you believe that your school has strong enterprise partnerships in the areas of resources, teaching, and management?
   - If yes, please explain why
   - In your opinion, how do these partnerships impact the high employment rates of your students?
   - If not, what challenges does the school face in developing linkages with companies?
   - Why do these challenges arise?
8. Among the previous four factors, which factor had the highest impact on the success of schools (high employment rates of your students)? Provide an example within a specific context and time.

9. Based on personal experience, what are your suggestions on how to improve your identified factor?

10. How has your school successfully overcome both internal and external challenges? Provide an example within a specific context and time.

11. In your opinion, to what degree has the government’s TVET policies (e.g. collaboration, quality assurance system, financial mechanisms, and articulation) impacted your school’s governance and policies? Explain how.
Annex 4: Interview Questions for Students

1. Why did you select this particular school? What were your expectations?

2. Are you satisfied (or dissatisfied) with your choice of this school?
   • Please provide details in regards to the curriculum, facilities, teachers, etc.

3. Do you believe that your school is a top performing institution?
   • Please explain why/why not.

4. Upon graduation, are you planning to pursue higher education or enter the labor market?
   • Explain your decision.

5. In regards to career, what desired level do you aspire to secure on hire?

6. Do you think it is necessary to earn a university diploma to acquire this desired job?

7. Do you think the school provides adequate practical training in order to secure a job?
   • If yes, please describe.
   • If not, what are the primary challenges?

8. Do you believe that your school is helping you build your future career plans?
   • Who helps you the most?
   • How do they help you?

9. Do you think the school stimulates and supports your creative development?
   • If so, please describe any existing programs and how they stimulate your creativity.
   • If not, what are the primary challenges?

10. If you have completed in-company practical training, please describe your experience.

11. Do you think in-company training should be formally organized and a part of the school curriculum?
    • Please explain why/why not.