

KRIVET

2005 Research Abstracts

Foreword

In today's era of digital globalization, human resources are replacing physical resources as the primary contributor for a nation's sustainable growth. Human resources development (HRD) is critical for the development of knowledge and information required in order for a nation to effectively respond to the dynamic changes in technology and global environment.

Nations around the globe are increasingly pressured to invest more on human resources in order to remain competitive in the global market. Nations that fail to effectively develop human resources are falling further behind in the global competition, increasing the economic disparity among nations. But the importance of HRD not only lies in its economic value, but also in its potential to improve the quality of individuals' work life.

Korea too, is faced with the challenge of enhancing the quality of the Korean public's work life through innovative HRD and technical vocational education and training (TVET) policies. Although it has achieved considerable success in this regard, there still remain problems to be solved, including job-skill mismatch and youth unemployment.

As Korea's leading research institute in the field of HRD and TVET, KRIVET strives to find creative solutions to Korea's HRD and TVET issues through its policy research on national HRD and VET. It also carries out research projects on VET infrastructure establishment, qualification system, education and training program development, and career guidance and counseling services.

Since its establishment in 1997, KRIVET has published more than 1,000 research reports, and KRIVET researchers with diverse academic specialties ceaselessly continue their endeavor to achieve innovative research results through in-depth, interdisciplinary approach. This publication is a compilation of research conducted by KRIVET researchers 2005.

It is hoped that the 2005 KRIVET Research Abstracts will help provide readers with a better understanding of the current issues in HRD and TVET in Korea.

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I. HRD Policy & Labor Market

I. HRD Policy & Labor Market

College-to-Work Transition and Human Resources Development of the Youth(I): Graduates' Satisfaction with College Education

Chang-kyun Chae · Ji-hee Choi · Jun-pil Ok

Data from a survey of the cohort of 2001 Spring graduates has been used for analysis. In the survey, graduates have been surveyed about their satisfaction with the quality of college education and its labor market outcomes.

In the following, we summarize the major results of analyses based on these data sets.

Satisfaction Level of the Graduates with College Education

Overall satisfaction of 4-year college graduates with quality of college education scored 3.1 out of 5. Satisfaction scores are lower than the average of results for such questions as 'Do colleges provide chances to explore the world of work?', and 'Is there an emphasis on applications and practicality in class?'. This suggests that college education needs to be improved to strengthen the practical side, focusing more on developing vocational competencies of graduates. The results also show that those who have improved their occupational skills at colleges have better chances of employment upon graduation.

In comparison with other countries, Korean college graduates' level of satisfaction with college education is far lower than that of countries like the U.K. and the Netherlands, and slightly lower than that of Nordic countries like Sweden and Finland. It is slightly higher than Germany and France, and far above than that of Italy and Spain. However, these comparisons should be taken with care, because although the survey made in Korea tried to emulate the surveys made in the countries listed above, the point in time and the universe of the Korean survey are rather different from those of other surveys.

Gap between the Level of Skills at Graduation and Demand in the Labor Market

The gap between graduates' level of skills at graduation and the level of skills demanded in the labour market is an important indicator of how well the college education prepares people for the world of work.

First, the average level of job skills of 2,001 college graduates at the time of graduation reached 3.4 out of 5. The difference between graduates' job skill level

Key words

College-to-work transition, College education, Continuing education and training, Employability

at graduation and that demanded at work averaged at 0.6. In comparison to other countries, the level of skills possessed by graduates in Korea is the lowest among the countries surveyed except for Japan. However, the level of skills demanded at work in Korea is as high as in other countries. In other words, the gap between the level of skills owned by graduates at graduation and the level of skills demanded at work is larger in Korea than in other countries. This shows that Korea's college education needs a major improvement in preparing graduates for the world of work.

Meanwhile, continuing education and training is expected to fill up such a gap in skills. However, this is found not to be the case among graduates in Korea. Those who have higher skills at graduation and those who have scored high in Student Aptitude Test to enter college have a higher probability to participate in continuing vocational training after graduation. This result holds even when other control variables are introduced into the logistic model of estimating the probability of taking part in additional vocational training. This represents a problem since additional vocational education is supposed to fill the shortage between what they learned at school and what is required at work. However, there is a polarization among graduates in opportunities for additional vocational training. Consequently, continuing education and training (CET) plays a role in widening the gap between those with high employability and low employability. Policy measures need to be taken to strengthen the function of continuing education and training, and narrow the gap existing among youth.

Effect of College Education on Current Employment

The skills which positively influence the employability of the graduates are found to be, among others, computer skills, English competency and the ability to apply what they have learned at school to work. Our finding suggests that there is a particular need to improve the skills of the students in those areas while they are enrolled at college. This can be done in various ways. Students can improve their computer skills and English by taking additional classes offered in private institutes. Colleges also should improve curriculum so that it can better match labor market needs.

Academic achievements of the graduates at college are likely to positively affect their employment outcome. However, obtaining additional schooling after graduation does not improve the employability of graduates or the quality of employment. Also, obtaining job-related qualifications or getting additional vocational training does not improve the chances to get a job. Policy measures are needed to improve the effect of obtaining qualifications and vocational training in finding employment.

College-to-Work Transition and Human Resources Development of the Youth(I): Labor Mobility of College Graduates

Chang-kyun Chae · An-kook Kim · Ho-yong Oh

Data for the analyses made in this study were drawn from numerous sources. First, merged data of the register of 2001 Spring graduates and their records in the Employment Insurance DB has been used. Another source of data used in this study was the Labor Force Status Survey of 2004 graduates of junior colleges and universities, which had been conducted in another study by KRIVET.

In the following, we summarize major results of analyses based on these data sets.

Issue of Overeducation

The magnitude of overeducation is estimated to range from 9.9% to 20.7% for junior college graduates, and from 19.0% to 19.5% for university graduates, depending on the indicators of overeducation applied.

Also, it is found that graduates do not necessarily earn lower income in a job requiring schooling lower than college education, compared to those with a job that requires college education. Given that graduates' income level is the proxy for their productivity, the finding implies that overeducation does not necessarily lower the efficiency of the national economy.

In addition, labor mobility can be used as a channel to solve the problem of overeducation. Overeducation increases the probability of graduates moving from one job to another, but those who move to another job do not necessary move to one that requires education level matching their level of schooling. Among those who are 'over-educated' at the first job, 12.9% of junior college graduates and 9.6% of 4-year college graduates moved to a job matching their level of education, as compared to the U.S. with 20% for the latter. This seems that Korea's problem of overeducation is solved through internal process within the firm rather than through the process of labor mobility between firms.

Mobility from Small- or Medium-sized Firms to Large Firms

Moving from a job at a small- or medium-sized enterprise (SME) to a job at a large enterprise takes place quite frequently. Among large firm employees who graduated from college a year ago, 27.6% has experience of working at SMEs. This figure increases to 48.5% among those large firm employees who graduated from college 3 years ago. This result shows that mobility from a SME to a large firm

Key words

Labor mobility, Overeducation, Science & engineering graduates, Job matching

is not limited but quite open. In addition, those who have previously worked at a SME for 1 year earn 5% more compared to those who have no work experience, when other factors are held constant. This implies that getting a job at a SME improves graduates' earnings power as compared to choosing to stay unemployed to get a job at a large firm.

Labor Mobility of Graduates in the Science and Engineering Field

The probability of science and engineering graduates finding a job that matches their major at college is not very high. These graduates' likelihood of finding a job matching their major as the first job is 33%. Even in the second job, the respective rate is slightly higher at 36%. More importantly, labor mobility does not improve job matching among science and engineering graduates. On the contrary, the probability of moving from a job that matches college major to a job that does not is higher than the probability of moving from a non-matching job to a matching job.

According to the analysis of wage outcomes of labor mobility among science and engineering graduates, earnings increase by a lesser extent where graduates move from a matching job to another matching job as compared to where graduates move from a matching job to a non-matching job. This explains why graduates do not necessarily make an effort to move to a matching job.

From the viewpoint of the national economy, the low rate of graduates getting a job closely matching their major can be a problem. Given the higher cost of obtaining education in the field of science and engineering, and given the weight of contribution of those trained in science and engineering to the national economy, this is a major loss of human capital at the national level.

Korean Education & Employment Panel (2005)

Chang-kyun Chae · Ji-hee Choi · Ji-sun Chung · Ju-hong Min · Seung-youn Kim
· Ji-young Ryu · Dong-jun Shin · Ki-san Choi

- This study aims to generate panel data that are sustainable and representative in the long view to closely analyze the relationship between education and the labor market while generating education-related information for the younger generation.
- In 2005, the second Korean Education & Employment Panel (KEEP) Survey was conducted.
- Subject and the number of samples for this second survey was similar with that of the first survey, with 6,000 participating students including 2,000 third-grade students in middle schools, 2,000 third-grade students in general high schools, and 2,000 third-grade students in vocational high schools. Most of them have now advanced to high schools or technical colleges and universities. Some ceased studying and are now working. Some are preparing for college or university admission. This study also investigated 6,000 guardians of these students.

Results of the First Survey

- The raw data for the first survey was revised through the first and second cleaning works. Where there was an error or need to recheck data, it was solved by directly asking the respondents.
- Additional Information
 - In connection with the 2005 College Scholastic Ability Test, additional information like elective course/type, exam attendance, standard score/percent score/grade of the selective course were provided for applicable respondents.
 - Such additional information as school type, region (city/province), principal or branch school, day or night school, coeducation, size of region, date of establishment, total number of students and the number of students in each grade, number of classes in each grade, number of teachers, number of special educational classes, number of female teachers, age of teachers, careers of teachers, number of graduates, and other finance-related information were provided for applicable respondents.

Key words

Korean Education
& Employment
Panel, Educational
experiences,
Korean youth,
Future careers,
Transition to the
world of work

- Distribution of Research Data for Academic Conference
 - The research data for the first academic conference was distributed on May 18, 2005 to the researchers who submitted their research plan to the first Korean Education & Employment Panel Academic Conference.
 - Various opinions were accepted through the meeting of experts after the academic conference and they were concerned with data type, data structure and questionnaire, explanation of variables, necessity of the additional processed variable, verification on subjective information, provision of a complementary user's guide, and management necessity for the expert group and data users.
- The research data for the first Korean Education & Employment Panel Survey will be officially distributed at the end of December 2005.
 - The final data along with text data will be provided in the form of SPSS and SAS data type.
 - The three sets of data by each questionnaire are likely to be provided, and the various kinds of data including the wholly integrated data or the partially integrated data are likely to be provided.
 - A CD will be made, containing various types of data like the data by each questionnaire or the partially integrated data, and user's guide, code book, layout, and questionnaire.

Development of the Questionnaire for the Second Survey

- The questionnaire for the second survey was divided into the questionnaire for high school students, university students, those who are working or studying for admission into university, and guardians.
- Three experts' conferences were held with specialists from inside and outside the related field to flesh out questionnaire-related issues and ensure the validity of its content. The process and the system of developing the questionnaire was improved continuously through 10 brainstorming sessions conducted by researchers.

○ Change of Questionnaire by Respondent

1 st Year (2004)	2 nd Year (2005)	
3 rd -grade students in middle schools	→ 3 rd -grade students in middle school 1 st -grade students in general and vocational high schools	→ Those who are working or studying for admission into a university
3 rd -grade students in general high schools	→ 3 rd -grade students in high schools, freshmen of college or university	
3 rd -grade students in vocational high schools		
Guardians	→ Guardians	

- The questionnaire for middle school students is for those who were third-grade students when the first survey was conducted but are still in middle school because they had temporarily stopped studying due to health and other personal reasons.
 - The questionnaire for the third-grade middle school students is similar to the questionnaire for high school students.
 - The questionnaire for the third-grade middle school students has additional query items like the reason of temporary absence from school, duration of absence, whether they will resume study or not, and when they will return.

- The questionnaire for high school students is for those who were in third-grade middle school in 2004 and are now in their first year in general or vocational high schools, and those who are still third-grade high school students because they temporarily left school due to health and personal matters. There were three different types of questionnaire.
 - The questionnaire for high school students consisted of queries on school life, family life, leisure life, private education, work experience, course plan and course guide, vacation, and other factors deemed relevant.

- The questionnaire for college or university students is for those who were third-grade high school students in 2004 and are now university or college freshmen. This questionnaire is only one type, irrespective of university or its feature. All the students who enrolled in the university or college are suitable for this questionnaire, although some students left school temporarily or are now working.
 - The questionnaire for college or university students consists of queries on school life, family life, leisure life, education·training, working experience as a student, course plan, private tutoring experience during the third-grade high school students, on-the-spot training, and other factors deemed relevant.

- The questionnaire for those who are working as employees and studying to enter university is suitable for all those respondents who are still studying for university admission, or are preparing for getting a job, or those who have dropped out.
 - The questionnaire for those who are simultaneously working and studying for admission into a university consists of queries on job-hunting activity, family life, leisure life, education and training, job history, course plan, private tutoring experience in 2004, on-the-spot training, general features, current status with the present job, features of the current job, whether they want to get a job or not, and the job-hunting preparation.

- The questionnaire for guardians is similar to that of 2004, made to check the family conditions of students and those who are working.
 - The questionnaire for guardians consisted of queries on change of guardians, economic status of male guardian, economic status of female guardian, household income, assets and debts, household expenses, and dwelling conditions.

Second-Year Main Survey

- Before conducting the second-year main survey, panels were managed through various methods such as telephone interview, mails and giving gifts since the first survey was conducted in 2004, in order to maintain contact with the subjects.
- This study judged the success of the survey based on the ability and quality of the interviewer. That's the reason why the researchers carefully selected the interviewers by region and supervised the training for interviewers, while sometimes educating and training interviewers.
- This survey started on July 15.
- The questionnaire survey by 1:1 interview was conducted using PDA. In case of the questionnaire for guardians, computer-aided telephone interview (CATI) was used for the survey.
- As of the fourth week of October, the survey was finalized with 4,217 students and 4,329 households.
- Updates on the Whole Survey
 - As of the end of October, 70.3% out of the panel of 4,217 subjects has been completed.
 - 647 subjects (10.8%) are scheduled to be surveyed.
 - The subjects who refused to participate in the survey reached 12.0%. This number needs to be lowered in order for the survey to be considered successful.
 - There are 287 students (4.8%) who have moved to a new address and need to be located.
 - The subjects unavailable for survey due to army service, overseas study, and disappearance from home reached 2.1%.
- Difficulties in Survey
 - In 2004, the survey was conducted with the permission of school principals or teachers. Some students felt that they had been forced to participate in the survey, so they opted not to participate in the second survey.
 - The characteristics of the panels are that there were many cases of changes in address and contact numbers. This kind of problem was particularly serious among students in vocational high schools. Sometimes, these kinds of problems made the survey impossible.
 - Although rarely, the PDA had errors.
- Direction for the Next Survey
 - All the panels have to be contacted several times, especially those who have rejected the survey, or in case interviewers could not find the subjects' contact number, or when subjects break their appointment. Accordingly, it is necessary

to extend the survey period for sending and receiving mails, and to continue making follow-up on the address of problematic students.

- 1:1 interview survey using PDA is the basic principle of the survey. But the survey using web questionnaire can be considered for the convenience of the respondents.
- If the need arises to improve the means of the interviews, improving interviewer incentive will be considered ? survey success proportion will be higher by applying different incentive programs according to the situation or regions.

Future Plan

- To make the CD that contains various types of data like the data by each questionnaire or the partially integrated data, and user's guide, code book, layout, and questionnaire to officially distribute the data for the first survey.
- To publish the basic analysis report under discussion about proclamation with the National Statistical Office using the data from the first survey.
- To conduct data cleaning within this year after completing the second main survey
- To develop the questionnaire for the third survey by May 2006
- To maintain and repair PDA solution
- To conduct the third main survey in July October 2006 as scheduled.

Building the Support System of Sectoral Human Resources Development

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Key words

Sectoral human resources development, Industry policy, Sectoral skills council model, Industrial partnership

With the transition to a knowledge-based economy, the Korean government is pursuing policies to develop human resources. Among those policies is a new approach to improve the private sector's role and participation. It takes the form of the sectoral human resources development approach being carried out in some countries such as the UK, Canada and Australia in order to overcome both market and government failures.

In Korea there are sectoral human resources development councils (SHRDC) operating in 10 industry sectors as of 2005. The SHRDC project is led by the Ministry of Commerce, Industry and Energy, but the Ministry of Education & HRD and the Ministry of Labor are also included as official government participants.

This study is based on the understanding of the importance of building the SHRDC support system and is ultimately aimed at improving the influence of SHRDC policy in work places. Mapping out a Korean SHRDC support system model, this study also adapted this model to the petrochemical industry as a pilot case study. This study employed various research methodologies such as literature review, survey on market failure in petrochemical industry, expert panels and case studies from foreign countries.

SHRDC Support Policies

The Korean government's industry workforce policies are vigorously pursued by MOE & HRD, MOL as well as MOCIE, but there is no comprehensive policy framework. Moreover, each industry has its own set of issues concerning market environment, industry-specific skills, workforce skills level, skills mismatch and so on. Each and all industries should have their own voice and also share a common vision in SHRDC in order to achieve visible achievements and hopefully set a Korean model.

Disadvantages of SHRDC support system are analysed as follows; first, inefficient decision-making due to the competition between ministries; second, ambiguous status and role of SHRDC; third, nonparticipation of trade union representatives; fourth, financial instability; and fifth, the lack of common interest among stakeholders.

The Analysis of Sectoral Skills Council Models in the UK, Canada, Australia and EU

Considering that the UK, Canada, Australia and EU have good SSC models and skills policies, this study could make a meaningful comparison with Korea's SHRDC and identify some lessons to be learned. The British experience offers important lessons in many aspects: first, develop SSCs in phases starting from industries with the right pre-conditions; second, develop collective perspectives for skills formation; third, promote appropriate government support and guidance including government-driven policies in the initial phases.

Australia has operated ITABs, which have been well-established and led by the private sector for a long period before recently being transferred into ISCs. The shift toward industry skills councils reflects the timely response of the government and industries to the changing global economy and skills need. The transition to ISCs is significant in that both employers and trade unions evenly play key roles, resulting in the improvement of the training system fit for multi-tasking skills formation.

The SC in Canada with a long history also has some lessons for the Korean model. First, it shows that independent and autonomous industry stakeholders with expertise can effectively lead SCs. Second, to lead SCs, it is necessary to have participatory industrial relations. Third, federal government's funding renewable in a 5-year cycle covers labor cost and operating cost. Finally, government support program based on 'result-based management and accountability framework (RMAF)' guarantees good performance of SCs.

EU has emphasized the importance of sectoral social partnership through many policies and agendas. As a result, VET has become an important agenda in European Work Councils, and the top four prior task of VET agreed by social partners in European level has deeply influenced both member states and industrial sectors.

Exploration of Korean SHRDC Support System

To design a sound Korean SHRDC model, it is important to establish supplier-user links, undertake a step-by-step approach to industrial partnership, increase the participation of large companies, accumulate expertise through industry-specific activities, and to have enthusiasm in designing the Korean model.

The Korean government should support SHRDC in order to make the Korean model work. The reform of SHRDC should be given priority support in accordance with mid- and long-term vision and strategies in order for it to act as the central mechanism of voicing industry views. Stable funding support should accompany the SHRDC reform. Institutional improvements are needed in terms of revision of related laws, strengthening of the status of SHRDC, encouragement of the participation of various stakeholders including companies, universities and training providers, reorganization of the research support network, and increased cooperation among government agencies.

Pilot Case Study: Petrochemical Industry

The pilot case study on petrochemical industry sought to find SHRDC support system for each industry and some of the results are as follows. First, the petrochemical industry has a considerable gap in the supply and demand of skilled workforce and it is imperative to induce collaborative responses to address this problem. Next, the petrochemical industry has a firm common ground because the skills needed in this industry are industry-specific rather than company-specific. Moreover, the skills gap in supply and demand is not only quantitative but also qualitative. To address this task, industry and academy should develop new co-op programs, and government should support them through SHRDC.

Education and training conditions of the small companies and plastic businesses in the industry are especially poor, which suggests that SHRDC in petrochemical industry may be operated in the form of consortium with stronger cooperation among medium-sized companies. In addition, the problem of labor shortage can be eased by setting up workforce information DB and offering labor market information. The petrochemical industry has very weak industrial relations and so no industry level negotiations have taken place. Weak industrial relations creates a barrier to form a healthy industrial partnership. Finally, the pilot case study shows the importance of participation of stakeholders including individual company as well as workers' unions. The survey and interview results of this case study reveal the CEO's interest in VET, and personnel managers' shared view on how to tackle company failure. SHRDC needs to launch diverse activities that would make companies proactive and increase their participation. Such activities will play a decisive role in the success of SHRDC in the future.

RHRD and Regional Employment Policies in Local Government

Ahn-kook Kim · Il-gyu Kang · Nam-cheol Lee · Ho-young Oh · Soo-won Kim
Joon-pil Ok · Jae-woo Ryoo and 17 regional researchers and professors

Human resources is a critical factor in the knowledge-based society. The importance of human resources development is growing in regional areas and so there is a key role to be played by the local government.

But there are many obstacles for local government in managing human resources development and creating jobs. One of the obstacles is the lack of central government's assistance. There is not enough manpower to effectively develop human resources and use them. There needs to be provision of institutional support and assistance in budget and manpower, and networks of relevant actors.

This project aims at surveying the policies for RHRD (regional human resources development) and job creation within local governments. Total sixteen metro-level governments are examined for the analysis of human resources development and job creating policies. This project develops indices for the evaluation on the RHRD and job creating policies.

Regional Development and the Role of the Local Government

The policies for RHRD as a fundamental determinant of regional competitiveness should be more led by local governments than by central government. As the economy becomes more complicated and the economic environment of each region is more changing, the contents of skill required by firms on the spot is more easily recognized by regional level than by country-wide level. Therefore it is possible to design and perform the training program appropriate for the economic environment of region by the local governments.

There is no disagreement on the fact that local government should play a key role in leading regional employment and HRD(human resource development).

Summing up the laws concerning the employment and human resource development of local government, each local government should try to devise policies considering both country-level policies and regional specificities and to operate the relevant education and training program, and local governments are entitled to plan regional innovation.

The facts on the regional employment and HRD of the local government

The active willingness and efforts of the chiefs of local governments are the key factor in job-creating and employment mediation and human resource development policies. Especially for HRD policies, it is also a key factor that the policy programs

Key words

- Flexicurity
- Netherlands
- Denmark
- Lifelong learning

are in harmony with regional necessity.

The parameters relevant with the performance of autonomous employment policies are the staffs and organization's willingness, and the chief's interest in staffs, and the arrangement of budget for employment policies, and the chief's special indication or guidance, and chief's campaign promises about job creating.

Local autonomous employment policies which go along with the company, university, and vocational education training institution have good performance in job creating. It means that the cooperation between demander, company, and supplier, university and VET institution, is an important factor to success in employment policies.

Local government's autonomous policies for regional employment and HRD are not so vigorous as a whole and vary peculiarly according to the regions. Local government's autonomous policies are well activated in the regions where government's scale is large as like Seoul, Gyeonggi and Busan. The scale appears to be related with local government's budget.

The regional employment and HRD policies are executed passively because most of them are delegated tasks of which budget is allotted by central government. And those who conduct regional employment and HRD policies are deficient in capability and speciality.

Some of regional employment and HRD policies are not relevant with regional industry policies. Because of the externality of HRD and the differences in administrative district and local labor market, it is required that local governments within a local labor market should cooperate with one another to develop and utilize human resource.

The level of collaboration between local government and company(or industry association) is very low. This results in the deficiency of the partnership for regional employment and HRD policies.

Information-infrastructure, especially data-base for statistics of regional labor market and training market, is not constructed yet. The net-works of job offering and job seeking, and the net-works of labor market and training market are also not constructed well or not used fully.

Evaluation system for the regional employment and HRD policies of the local government

Now the significance of the evaluation of the local government's employment and HRD policies grows more and more. With the legislation on regional-balanced development and the support toward regional employment and HRD by authorities like MOE & HRD (Ministry of Education and Human Resources Development), MoL (Ministry of Labor), MOCIE (Ministry of Commerce, Industry and Energy) are growing more and more. The employment and human resource development policies of local government has also expanded. So, it has been argued that the performance of local government's policies for RHRD and job creating should be evaluated.

Evaluation on the policies for RHRD and job creating has significant meaning in the point that it will promote the performance and the effectiveness of regional employment and HRD policies. In addition, evaluation will induce the chiefs of

the local governments to be more interested in the HRD policies and the staffs to increase their specialities. Furthermore, it will help the government to use efficiently budget because the evaluation results can be the basis for budget allocation and prevent operating the ineffective policies for regional innovation.

The evaluation should become the process of consulting and supporting the policies. In other words, the evaluation process should seek the better practices by diagnosing the problems and proposing the alternatives. Therefore, it is necessary that some best policies should be found and appreciated.

The results of the evaluation should be reported to the central governments and the chief of local government so that they can be reflected in conducting HRD and regional employment policies. In addition, the evaluation can correct and avoid overlapping policies between central and local government by sharing the evaluation results.

It is important to select and constitute performance-based evaluation standards and indices, especially core evaluation indices, according to key policies. Core evaluation indices should be transformed into a standard to calculate performance. We propose an example indices for the evaluation of HRD and employment policies.

Conclusion – policy proposals

Regional policy should be shifted from reducing the disparity of regions to region's acquiring competitiveness. Central governments should give sufficient administrative and financial support to the local governments to strengthen capabilities.

Central government should make efforts to cure both market failure and institution failure. As public goods, the investment in HRD and the construction of net-works and partnerships are not supplied sufficiently and spontaneously, governments have to make efforts to promote HRD investment and net-works construction.

Demand-based policy should be established. Regional HRD is to be adjusted to industry demand and labor market demand of the region. Evaluation-oriented approach should be applied to the regional HRD and employment policies.

We propose nine policy proposals. First, the duties between central and local governments should be reestablished. Policies for employment and HRD between national-level and local-level should be well arranged to the national and regional labor market. Second, the leadership of chiefs of local governments should be strengthened. Third, incentives are offered for the staffs to acquire speciality and make effort. Fourth, the organization for employment and HRD should be constructed and operated to be exclusively responsible and mediating. Fifth, HRD, industry and employment policies should go along with. Sixth, it should be sought to strengthen partnership between actors in employment and HRD within the region. Seventh, data base for employment and HRD should be constructed. Eighth, policies for regional employment and HRD should be evaluated. As a result, best policies can be spread and the inferior policies can be improved. Finally, regional residents and NGOs should take more part in the policies for employment and HRD.

Military Career Management and Military Service Recognition for Effective Transition to Civilian Career

Jung-pyo Lee · Yoon-hee · Park Seok-hun Woo · Byung-soon Choi · Chang-ik Choi

Key words

Military career management, Transition to civilian career, Vocational education and guidance system, Recognition system for military service, Employment support system

The aim of this study was to provide policy directions, identify the key issues in military career management, and enhance the recognition of military service as work experience - necessary for the effective transition to civilian career. To achieve this, first, the meaning and importance of military career management and a recognition system for military service were reviewed for its improvement on after-service employment. Second, the operation of military career management and recognition system were analyzed and previous research and selected country cases were investigated to derive implications. Third, this research reviewed the current status and problems of the military career management and recognition system, which is centered on military career development related to the future civilian career. Also reviewed were the records and management of military careers and educational experiences on services. In addition, this paper examined the vocational education and guidance system that offer support for employment, recognition of military career in the form of academic credits, and vocational qualifications. Fourth, the perceptions and needs of employers toward job competencies, as well as the current status and problems of the employment support systems for those discharged from military service were analyzed. Lastly, this paper looked at policy directions and measures for improving military career management and recognition system to help realize effective transition from military service to civilian career.

This study carried out analyses of literature and materials, held expert councils and discussion meetings, a seminar study visits and interviews.

Policy Directions for Making Military Career Management and Recognition System for Military Service Conducive to an Effective Transition to Civilian Career

- Improvement of military personnel records to include reported military experience as a way of enhancing employment prospects after being discharged from military service.
- Establishment of 'Military Outplacement Service Center' to provide assistance on civilian career plans, vocational guidance and education, and designing of the future employment for those discharged from professional military service.
- Strengthening and widening of social recognition of the education and training attainments acquired during military service.

- Expansion of opportunities to acquire academic achievements and academic degrees while serving in the military. Together, there should be strengthening of the linkage between military education and degree or credit bank system.
- Strengthening of the quality control for the military national technique qualification system to ensure social recognition. Also, heightening of the levels of qualification and diversification of the skills acquired in the military.
- Strengthening of program and certification evaluation in order for military to secure high quality education and training programs. Also, by empowering the 'Military Qualification Law' to award certificates and qualifications, prepare a pathway through which educational and training accomplishments can be recognized in society at large.
- Establishment of career information service network through which people can search for civilian credentials associated with military occupational specialties, find requirements to obtain those credentials, and browse available vocational education programs that will support self-development.

HRD Policy and Program for the Elderly in Leading Countries

Eui-kyoo Lee

✦ Key words

HRD policy, Senior community, Job security, Jump 65 program

In Japan, the government hires special advisors to aid in the employment of the elderly to work until sixty five years old. A program called the 'JUMP 65 PROJECT' has been enhancing the job market environment for the senior community since 2001.

The U.S. government has developed many similar programs: 'Senior Community Service Employment Program', 'Workforce Investment Act', and 'Trade Adjustment Assistance' in order to increase the participation of seniors in the labor market.

In Germany, the government has established the Lifelong Education System to maximize the efficiency of seniors' job security. The system is specific enough to respect experience, thereby giving very practical help to the seniors.

There are two laws, FINPAW and VETO, for aging workers in Finland. The former is a national program for stabilizing job security for ageing workers. The latter is a national program for promoting an active working life and the working and functioning ability of the working population.

In Australia, the government gives elderly workers the chance to partake in such programs that are helpful for their job security, such as, BITES (Basic IT Enabling Skills), TWP (Transition to work Programme), and WFD (Work For The Dole).

II. Lifelong Learning & Disadvantaged Groups

II. Lifelong Learning & Disadvantaged Groups

Korean Adults' Key Competences: Analysis of National Data of ALL Survey

Eon-Lim · Dong-son Choi · Eun-jin Oh

In the global economy, the quality of labor in a country is essential in determining its competitiveness. The OECD has performed surveys on competencies to make an international comparison of the stock of human resources, and to find implications for education and training. Korea has participated in the OECD ALL (Adult Literacy and life skills) survey in 2002 and the main survey was completed at the beginning of 2005. The household survey included 5,506 adults aged between 16 and 65, measuring prose literacy, document literacy, numeracy and problem skills.

The purpose of this study was to analyze the national data of the ALL survey in order to examine factors influencing skills formation and skill loss of Korean adults, and to find policy implications for lifelong learning and human resources development. The compilation of international data of ALL survey is due for completion in 2007.

Age, Gender, Education and Skills

Skills diminish as people get older. For university graduates, the degree of skill reduction is low. There was a significant gender difference in numeracy. The number of years of education shows a positive correlation with skills, with diminishing returns.

Life-long Education and Skills

It was confirmed that Korean adults participate in formal and non-formal education much less compared to adults in other countries. Only 11.1% of Korean adults engaged in adult learning, which is considerably lower than other countries. Korean adults' participation in informal learning in everyday life was 51.0%, which is also lower than other countries. 81.2% of adult learners responded that the purpose of learning was for their jobs and career development. The main reason for not participating in adult learning was lack of time (79.2%) followed by child-care and housekeeping(37.6%), and burden of costs (28.8%). Participation in adult learning is lower among the low-skilled than the high-skilled.

Key words

Key competencies,
Literacy, Skills
formation, Lifelong
learning

Skills and Information and Communications Technologies (ICT)

Gender, age, educational attainment, occupation, and community size were all significant factors explaining the difference in the use of, and familiarity with ICT. Especially, knowledge expert, managers, and information high-skill showed higher perception of ICT utility than occupations with low requirement for cognitive skills including information low-skill, services low-skill, and goods. The pattern is similar for the degree of ICT use in the workplace.

There was a strong correlation between literacy skills and the ICT use. The result revealed that people with high literacy skills tend to use ICTs more intensively and be more familiar with them than those with low literacy skills.

ICT use was also an important component determining individuals' income.

Skills and Daily Life

This study confirmed that literacy skills are closely related to the engagement in literacy activities in daily life as well as in workplace. With regard to health status, individuals with higher skills also lead a physically and emotionally healthful life. Men were healthier than women, and the older were healthier than the younger. The more highly educated gave more positive answer to the questions on their health status.

Literacy skills also exerted an influence on social capital. Problem solving explains participation in group activities and the level of prose has a correlation with their voluntary activities.

Skill Formation, Loss and the Results

Years of education, literacy practices in workplace and daily life, and lifelong education were the most critical factors determining the formation of literacy skills. The skill loss is mostly attributable to the age effects. However, it was revealed that practice effects also play an important role in preventing the rapid skill decrease.

This study demonstrated that literacy skills have an impact not only on individual's everyday life but also their competitiveness in workplace. Skills are related to people's health conditions and participation in group and voluntary activities. Also, the study found the partial effect of skills on employment and income.

Implications for Policy-making

Judging from the data which indicated significantly lower participation in lifelong education among Korean adults compared to those in other countries, policy efforts are required to increase people's understanding of, and participation in lifelong education. The fact that 79.2 % respondents are unable to take part in lifelong education due to lack of time suggests that the government needs to put into place such related policies as changes in working culture and introduction of learning vacation. Moreover, the government should consider providing financial plans to

support potential participants in lifelong education and lessen individuals' burden on lifelong education.

There is a noticeable gender difference in skill loss, implicating that women have relatively less opportunity to develop their abilities than men. Evidently, there is a need to emphasize the importance of learning and literacy skill use, especially for women in our society.

This study presented the mechanism by which low literacy skills cause a vicious circle of poverty. Lack of education is directly connected to the insufficient literacy skills, which lead to limited opportunities of skill usage, deficient social network and even poor health status. These findings point to the need for greater social efforts to break the circle.

Lastly, both the effect of age and practice effects was evident in all features estimated in this study. Therefore, these findings can be used to intensify education and training for the middle and old aged.

Employment Pattern of Middle-aged to Senior Citizen Workers and the Prospective Occupations Available to Them

Young-sun Ra · Sang-jun Lee

Key words

Population aging,
Older workers,
Vocational
competency
development,
Employment
pattern

The rapid ageing of the population is a global phenomenon. With a decline in fertility, the labor force participation rate of older workers has declined markedly. In addition the quality of employment for middle-aged and older workers has deteriorated.

This study is designed to identify the stylized facts of employment patterns of middle-aged to senior workers and the vocational competency development needs for job transfer and re-employment after early-retirement or layoffs. The nationwide questionnaire survey was conducted among those aged 45 and above (3,385 persons). Raw data of Economical Activity Population by the National Statistical Office was analyzed. We selected 39 prospective occupation lists from O-Net & Know information system through several expert consultations and meetings.

Findings

The labor force participation rate rapidly declines for those workers aged 50 and above. This suggests that the retirement age from the Korean labor market starts at 50.

In terms of industry and job status employment patterns of middle to older-aged workers, it mainly depends on their educational attainment. Those with higher level education were more represented among professional and higher paying jobs. On the other hand, those with a lower level of education were more represented among unskilled jobs.

Mostly, workers made the transition to small business employers or self-employed status after reaching 50. High school graduates were more likely to return to part-time jobs after a failure in their own business.

The employment pattern of the middle to older-aged workers aged 45 and above was classified into 4 types; employment-retention, re-employment, durable self-employed, and recurrent self-employed. The amount and percentage of durable self-employed was more dominant after the age of 60.

Vocational competency development needs for the middle to older-aged depends on these 4 employment types. Vocational competency development for the employment-retention type needs to be provided as career development or a stepwise career-transfer program among the same kind of jobs. Vocational competency development for the re-employment type needs to be provided as a stepwise career-transfer (such as part-time jobs or returning into the same business though lower-status). Vocational competence development for the durable self-employed type needs to be provided as upgrade to their own business management. Vocational

competency development for their current self-employed type needs to be provided as aid in developing new skills.

Prospective Occupations for the Middle to Older-aged Population

The concept of prospective occupation is very ambiguous and critical. Nevertheless, this research selected 39 prospective occupations for middle to older-aged workers by using the following method: 1) using information from 'O-net' data-set of America and 'Know' data-set of Korea; 2) considering the changes in physical ability with ageing; and 3) excluding self-employed jobs that need high funding.

- Social service sector: local social counsel, environmental compliance inspectors, social and community service managers etc.
- Educational service sector: kindergarten assistant teachers, history teachers or interpretation, quasi-librarians, etc.
- Travel & information sector: local tour guides and escorts, concierges, interpreters and translators, park naturalists, etc.
- Driving service sector: school bus and shuttle bus drivers, parking lot attendants
- Food Service sector: bakers, bread and pastries, waiters and waitresses
- Health & Care sector: medical equipment preparers, child care workers , personal and home care aides
- Finance & accounting service sector : loan counselors, cashiers, insurance counselors
- Sales sector: IT sales engineer, medical salesman, tele-marketers
- Computer sector: computer hardware consultants, small DB administration
- Other: built-in electronic product installers or repairs, oil or gas service

Development of Vocational Career Education System to Improve the Employability of Aged Workers

Ki-hong Kim · Mee-souk Kim

Key words

Employability,
Vocational
competency
development
system, Employer
participation, Social
agreement,
Vocational
Training for the
aged

This paper is aimed at drawing up the right direction to create a vocational competency development system for middle and older workers and its detailed initiatives. There is social significance in the concerns for these workers. One is because the employment insecurity of old age workers has become a social issue since the economic crisis in 1997. New policies for older aged workers are needed as Korea's demographic trends are moving toward an aged society. To maintain and improve the quality of their working, both employability improvement and a vocational career education system to support those workers are definitely necessary. In order to help middle-aged and older workers to become a more productive generation, the government, employers and workers should work together. The government should stimulate employers' participation in creating support infrastructure for older workers, and preparing for market failure as well. It is strongly recommendable to build a mechanism for social agreement on utilization and support of the middle-aged and older labor force.

Analysis of Vocational Training for the Aged

The rate of participation in vocational training of the aged is very low. Of those involved in participation, vocational training is higher than other aspects like formal education and cultural programs. All these groups show trends of taking part in job training to upgrade their ability to work.

The aged worker is targeted for improving current working skills. And they prefer regional centers to others as the main institute for vocational training, but employed workers prefer in-house training centers. The major area of job training is separated by ageing type. The highest proportion of aged workers is found in the construction sector, while the others are found in management areas. With regard to the length of training, those aged under 60 complete 11 to 20 training hours and those over 60 complete 31-40 hours.

The aged and unemployed seem to take part in vocational training, but the quality of employment tends to be low. For example, they work in small-sized firms with 30 or less employees and their positions remain temporary even after receiving training. Also they work in jobs not matching their training field.

As a result, we have to try to make various training programs and need more efficient government support. The social accountability to employ the aged is only achievable by establishing the proper systems.

Building a Learning-focused Welfare System

Young-hoon Oh · Hye-won Ko

This study was designed to build up the comprehensive schemata for a learning-focused welfare system which would be helpful for low-income households. In this study, a learning-focused welfare system refers to 'national and social activities in social welfare to meet the learning needs of all people including low-income households.' This study involved literature review, comparative analysis on the related data and information about other countries, expert committee meetings, case studies, and survey questionnaires.

In order to fulfill the purpose of the study, the following set of objectives were established:

First, the concepts and areas of the learning-focused welfare system were set up.

Second, operational policies and programs which were related to the learning-focused welfare system for low-income households were identified. A self-sufficiency activity system was examined to understand the status of self-sufficiency activities under the National Basic Livelihood Security Act. In particular, the focus was on vocational training under the Ministry of Labor and activities of self-sufficiency promotion agencies under the Ministry of Health and Welfare.

Third, the perception and needs toward the learning-focused welfare system of participants of self-sufficiency vocational training, self-sufficiency promotion agencies, welfare agencies, and ordinary people were analyzed. Three types of surveys were conducted on participants of self-sufficiency vocational training, self-sufficiency promotion agencies, and ordinary people to get actual data. In addition, case studies were conducted on 4 self-sufficiency promotion agencies.

The major results of the surveys are as follows: a) the government has been providing incentives to promote vocational training for self-sufficiency. Yet, actual benefits for training facilities are not sufficient; b) there are difficulties during training including family responsibilities such as child care and care for sick family members as well as lack of income. Participants were found to drop out of training mainly due to health problems and family burdens. This finding suggests that income support and help to ease family responsibilities should be provided during vocational training; c) participants varied in gender, age, training levels, and family backgrounds. Given this, training programs should meet the different needs of these diverse people; d) after completion of training, agencies provided little help in finding a job. Thus, employment guidance needs to be improved.

Fourth, the Learning-focused Welfare Systems in foreign countries were analyzed. In particular, the Workforce Investment Act and TANF in USA, New Deal in England, and Golden Triangle in Denmark were analyzed.

Finally, future directions to enhance a Learning-focused Welfare System were

Key words

Learning-focused welfare system, Low-income households, Self-sufficiency activity, Employment guidance, Social inclusion

provided.

This study strived to suggest measures to help facilitate the development of low-income households who run a high risk of being excluded from educational training and employment programs. As a result, this study suggests the following measures, based on the concept of the learning-focused welfare system to facilitate the development of the low-income households.

The policy recommendations are as follows:

The vision of the learning-focused welfare system is to enhance the wellbeing of low-income households and increase social inclusion. The goal of the learning-focused welfare system is to eliminate social exclusion, offer opportunities to participate in vocational education and training, and strengthen personal employability. The educational conditions and system should be built for all people who want to participate in vocational education and training programs. In order to achieve the vision and goal of the learning-focused welfare system, the following implementation strategies are needed.

First, the related ministry to eliminate educational barriers for children, students and low-income adults who cannot work should be the Ministry of Education and Human Resources Development, whose responsibility should be to enhance the Educational Welfare Investment Program.

Second, the related ministry to manage vocational training for low-income adults who can work should be the Ministry of Labor and the Ministry of Health and Welfare.

Third, a social welfare service delivery system for low-income households should be established. The government has been providing incentives to promote vocational training for self-sufficiency. Yet, actual benefits for training facilities are insufficient. In addition, daycare and healthcare should also be established along with the related support system.

Fourth, networking systems among related departments have not been efficient. The consistent operational systems and cooperative systems between central departments and local autonomous entities should be developed. In order to establish an efficient infrastructure for self-sufficiency vocational training, information networks of the Ministry of Labor and Ministry of Health and Welfare should be reorganized to efficiently share comprehensive data of job seekers and operations. In addition, an integrated service delivery system should be reorganized as an implementation-oriented system that focuses on direct delivery of service.

Fifth, to promote regional community oriented policies for low-income households, participation in small-sized projects at the regional community level should be promoted, wider use of the regional social network system should be brought about, and the sense of social exclusion felt by the low-income households should be overcome.

III. Qualifications & Occupations

III. Qualifications & Occupations

A Study on the German Qualifications System

Dong-im Lee · Deong-ki Kim

In establishing a new qualifications system or preparing measures to solve operational problems of Korea's qualifications system, foreign qualifications serve as an important benchmark. In particular, German qualifications have drawn interest not only in Korea but also in many other countries, for they are highly field-based and utilized. However, there has been only limited studies on German qualifications. That is, skills related qualifications that are closely related with the dual system have been studied, but so far there have been very few studies on occupational qualifications related to school education and professional qualifications. Therefore, this study aims to make a comprehensive analysis on the managerial and operational status of German qualifications by type, and to identify advantages, problems and implications of the German qualifications system.

Results

The German Qualifications System

One unique feature of German qualifications is that they are highly field-based due to the legacy of the handicraft work era remaining stronger in Germany than in other European countries. In 1811, the guild seemed to fall apart just as in other European countries with expanded freedom of sales, but in 1897 a traditional handicraft training system was legalized.

German qualifications are linked to education and training programs. In other words, qualifications examination is accommodated as a part of education and training programs. Therefore, improved quality management of education and training increases field applicability and credibility of qualification examinations.

Qualifications in Germany have been managed and operated by trade unions and employers bodies. That is, the government has made training and qualifications to be legally effective on matters agreed by labor and management, which can be seen as an outcome of a long standing cooperative relationship between labor and management concerning occupational competency development.

German qualifications are unique in that it is profession-based. The scope of work in one qualification subject constitutes one profession. Therefore, it is essential to receive specific education and training, and acquire qualifications in order to advance into the labor market. Qualification holders are tend to find employment more easily than those non-holders.

Key words

Qualifications system,
Occupational qualification,
Supply and demand mismatch,
Early recognition system

Management and Operation of German Qualifications and Examinations

German qualifications are classified based on the Federal Law on Vocational Education and Training (engineer and meister qualifications), based on state education laws (technician and engineer qualifications), and based on individual laws (national professionals such as doctor and teacher).

Examinations concerning occupational qualifications based on the Federal Law on Vocational Education and Training is governed by chamber that represents corporate interests, and employers bodies make major decisions. These are composed of members of the examination committee that is in charge of quality management of examinations. The completion of the training program is the prerequisite for technician qualifications examination that is closely related with the dual system. A significant working experience is required for applicants who have not completed the training program except meister qualification. There is a systematic framework for establishment of new qualifications. Businesses manage the quality of qualifications and examinations are carried out in various ways including written, performance and oral tests.

Qualifications based on state education laws are educational and occupational qualifications. Therefore, the completion of school education program is a precondition for applicants. Examinations are administered by the school providing education programs, with the principal, teachers and professors constituting the examination committee. The school performs evaluations on a regular basis to ensure the quality of qualifications.

There are two stages to examinations for professional qualifications. The first one is the college graduation examination and the second one is the examination administered by relevant professional bodies. Applying for the second test requires about two years of working experience after the first test and the final qualification is awarded based on the evaluation of work experience. Only college graduates are allowed to apply for the tests, which are carried out in various ways including written and oral examination, thesis submission and class demonstration (for teacher qualification applicants). The examination committee is composed of public officials at competent ministries, professors, professional program instructors (for teacher qualification applicants) and school principal for field studies.

 Recent Reforms in German Qualifications

First, reforms are being made to increase the flexibility of qualifications, since the problems of German qualifications are attributed mainly to the lack of flexibility. In particular, there is a mismatch between supply and demand, because the introduction of new qualifications has not been flexible in responding to the external environment. To solve this problem, an "early recognition system" was introduced to establish new qualification subjects in a flexible manner based on scientific judgements. Nevertheless, it is not easy in new service areas to introduce new qualification subjects due to the absence of relevant labor and management bodies.

Second, reforms have been made to achieve equality between occupational education and general education so as to provide higher education opportunities to occupational qualification acquirers, thereby promoting their lifelong learning.

Meanwhile, relevant stakeholders have agreed to build the qualification framework. Similarly, an institutional framework has been established for the sake of equality between occupational qualification and educational qualification, but there has been difficulty inducing agreements from colleges.

Third, reforms are underway, seeking to innovate the testing method so that tests are conducted in a more comprehensive manner to accommodate what is needed in the field and practicality. However, difficulties remain in applying standardization of test, to overcome which it is absolutely required to improve expertise of the examination committee. For this, a professional expert group was formed to support the examination committee and the group members provide advice on qualification subjects and improvement of test standards.

Implications

German qualifications offer a number of implications as the following. First, the management and operation of German qualifications are driven by customer needs. In particular, businesses play a key role and trade unions, as a partner, also participate in the decision-making process concerning qualifications. Meanwhile, the government legalizes only what was agreed between employer bodies and trade unions.

Second, qualifications are linked to education, training and work. Especially, there is a strong link between qualifications, education and training, and it is easier to get a job after acquiring qualifications.

Third, the quality of qualification examination is managed by the industry.

Fourth, new qualification subjects are established on a systematic manner on the ground of "early recognition system".

Fifth, flexibility is being sought for the management of qualifications. In particular, it is possible to award unit qualification in qualifications related with improvement training.

Sixth, a comprehensive examination method was introduced with improvement of examination method.

Seventh, efforts are being made to achieve value equivalence between occupational qualifications and educational qualifications in order to promote lifelong learning.

Occupational Research of Electronics Industry

Sang-Geun Han · Joon-Shik Park · Chang Kyo Seo · Hong-Geun Chang · Jong-Sun Lee · Ki Hun Kim · Jong-Sung Park · Yun-Kyoung Jeong · Dong-Son Choi

Key words

Occupational capabilities, Occupational requirements, Educational training curricula, Qualification standards, Career path

Currently, there is a large gap between materials studied through educational training and the knowledge and skills demanded in the working world. The first step towards narrowing this gap between educational training and industry is a detailed analysis of the requirements of industry. In consideration of this problem, the Study of Occupation (I) is designed in order to trace the realities of the corporate world, while maintaining a close networking arrangement with industrial settings, to understand what the occupational capabilities that are required of core professionals are, and what kind of educational training and qualifications are needed to support them.

In-depth interviews, field observations, work responsibilities analysis, and surveys were employed as the primary methods of studying the occupational requirements of the electronics industry. Conducting in-depth interviews is a key method for understanding trends in the industry, and the actual conditions of job duties from SMEs (Subject Matter Experts), including human resources managers, factory managers, foremen, master mechanics, incumbents of core occupations, and personnel from related institutions within the industry. Both structured and non-structured questions were used together in the in-depth interviews. On-site observations are effective methods of observing, hearing, and understanding work sites. Details of on-site observations are varied, including work processes and systems, related work, mutual relationships between jobs, the work site environment, and the equipment and facilities used. Work analysis is a systematic process involving collecting all significant information related to the nature of the work, and organizing this information appropriately, according to the management goals. The work analysis conducted in this study aims to analyze the work undertaken on industrial sites, and to use those results to develop appropriate educational training curricula, standards for workplace capabilities development training, and criteria for establishing questions for officially approving qualifications.

Subject and Content of the Study

The subject of this research on occupations is the electronics industry. The electronics industry falls under the general manufacturing industry category, in which 19% of workers in all industries in the Korea Standard Industry Code (KSIC) are engaged. The significance of the electronics industry within the manufacturing industry has substantially increased in recent times. Of the diverse ranges of electronics sub-industries, this study will be conducted focusing on the following three: the semi-conductor manufacturing industry the cellular phone manufacturing

industry and the electronic medical equipment manufacturing industry. These three industries were selected through the processes of statistical data analysis of production volumes and employee numbers, an analysis of, and expert consultation on, the relative importance of these industries in terms of national strategic industries, and the opinion consensus collection of advisory committee members.

This occupational study of the electronics industry has as its chief objective the clarification of the characteristics of the working world in the electronics industry. Based on this, the implications for educational training processes and for qualification systems, through a detailed analysis of the core occupations within the primary electronics industries, are to be determined. To this end, this study examines the elements outlined below.

First, this study aims to research the distribution of occupations within the electronics industry. The range of occupations and selection criteria within the electronics industry were decided upon. After examining domestic and foreign occupational groups, an occupational classification system within the industry was proposed. Second, core occupations that tend to drive the industry were chosen. To accomplish this, the distributions of occupations across industrial sectors were sampled according to production process. The core occupations among these were then selected. Third, the characteristics of each core occupation were analyzed in detail. Details of the duties performed were studied. These included the kinds of instruments, equipment, and raw materials used, the abilities required to perform the job duties, an analysis of the working conditions, such as annual salary levels, working hours, intensity of work, and work environment, the training period required to develop an appropriate, and fully recognizable, level of skills in the relevant fields, and information about hiring trends, job transfer paths, and the occupational outlook. Fourth, we examined changes in the market, technology, and systems that are taking place in core areas of the electronics industry, and observed the direction to which the paradigm of skills training and learning is heading. Lastly, we identified the way in which occupational routes are formed according to core occupations in the electronics industry. Included here, together with routes that promote expertise within specific areas, was an outline of areas and occupations wherein occupational change was possible, according to level and department.

Core Occupations in the Electronics Industry

Occupations in the electronics industry were divided into core and peripheral occupations. In this study, core occupations were specified as occupations that 'involved the conducting of central roles in terms of manufacturing products for, or providing services to, applicable businesses'.

Core occupations were selected in this study in consideration of a number of factors, such as the role in individual work processes, the period of training and skill development required after a practitioner begins working in a position until the performance of their duties occurs smoothly, the degree of difficulty in securing practitioners, the number of related workforces, etc., and by collating the views of incumbent workers and industry experts. Relative to their surrounding occupations, the 20 core occupations selected according to these criteria illustrated significant

differences in wage levels, and were found to constitute a central component of future human resources development trends.

Analysis of Core Occupations in the Electronics Industry

It has been demonstrated that while theoretical knowledge related to the major fields is an important factor for successfully conducting job tasks related to semiconductor manufacturing, practical knowledge is much more important. This fact reflects the characteristics of equipment industries where, due to rapid technological developments, knowledge, skills, and know-how learned through practical work experience become more significant than other factors, and where being able to effectively handle equipment and instruments is extremely important.

It appears that the cultivation of a workforce in core occupations in the semiconductor industry has been achieved primarily by electrical engineering or material engineering departments. There do, however, appear to be limitations when it comes to acquiring specific knowledge or skills in the industry. Many current workers responded that 'the depth of education is shallow compared to the work performed at the job-site'. Additionally, the nature of the semiconductor industry as an equipment-based industry means that sufficient learning opportunities to utilize related equipment and instruments in workforce training processes were lacking. In order to reduce this gap between educational training in the semiconductor field and the needs of the labor market, many respondents suggested solid industry-academia cooperation and a hands-on, work level-oriented education as the solution.

It is expected that in the semiconductor manufacturing industry, the relative importance of R&D will continue to grow compared to the relative importance of manufacturing. The anticipated result will be that the R&D workforce will continue to grow in size while operators decrease in number. The demand for multi-functional, highly integrated semiconductors with high processing speeds is likely to increase. For this reason, therefore, it is forecast that the high levels of demand for core occupation practitioners in the semiconductor industry would be maintained in the future.

Among occupations related to the cellular phone industry, those requiring particularly high levels of theoretical knowledge are cell phone designers, cell phone RF developers, and mobile SW systems engineers. Based on theories in the respective major fields, cell phone designers are required to be prepared for a number of changeable situations. Core courses, such as design concepts, marketing, and consumer demand theories are found to be helpful in the practical work tasks of cell phone designers. In contrast, it was pointed out that knowledge related to mechanical design, although useful to current workplace tasks, were not obtainable from university education.

In terms of major related working-level knowledge, most of the occupations studied, such as cell phone designers, mobile handset design engineers, cell phone RF developers, and mobile HW engineers required skills best developed in the workplace. In the case of cell phone designers, it was found necessary to acquire

basic knowledge about product specifications as well as working-level knowledge about 2D & 3D design programs, in order to quickly understand the manufacturing processes within the industry. For mobile handset design engineers, it was found to be extremely important to have experience in problem-solving and an understanding of design tools such as Pro-E and AUTOCAD.

In relation to cell phone manufacturing, the degree of the gap between university education in a major and the actual work carried out was examined. Cell phone designers, product planners, and mobile handset design engineers scored higher than average for the 20 occupations that were studied. In the case of cell phone designers, opinions such as "the teaching tends to focus too much on design" and therefore, "the work process and tools used all have to be learned in the workplace" were commonly expressed. One designer pointed out that "academic education demands the design of ideal products, rather than an understanding of the practicalities of mass production. Since work performed in the field is directly related to mass production, there is a gap immediately after a design concept is chosen".

Of the five core occupations in the electronic medical equipment industry, it was found that electronic product planners, medical equipment HW design researchers, medical equipment SW design researchers, and electronic medical equipment specifications engineers in particular required a high level of theoretical knowledge in their major fields. Medical equipment HW design researchers responded that basic preparations of drawings and knowledge from their majors related to their design work was required, in addition to a theoretical understanding of operations and principles pertaining to the related products.

Higher standards were usually required of practical knowledge of majors than in theoretical knowledge of majors, especially for electronic medical equipment planners and electronic medical equipment SW design researchers. Electronic medical equipment SW design researchers responded that, even if designed according to theory, without experience-obtained knowledge of issues such as positioning or distance between lines, desired results were often not achieved. They also suggested that when designing such circuits, practical knowledge in their major fields was useful.

Electronic medical equipment specifications engineers and electronic medical equipment inspectors were found to exhibit higher levels of disassociation between their education and labor markets than industry average. In contrast, electronic medical equipment planners, medical equipment SW design researchers, and medical equipment HW design researchers were found to have relatively low degrees of such disassociation.

Career Paths in the Electronics Industry

In this study, a career path was specified as 'the systematic organization of occupational or job areas in which practitioners in specific occupations may, after joining a company, gain experience and move to higher level positions within the organization, or gain a transfer using their skills or experience.' Together with the vertical paths of ascent that result from hierarchical structures within organizations, occupational paths may include diverse items of information, such as required

periods of service, levels of educational training, professional abilities, and potential for transfer between occupations.

In order to determine the most general career path according to occupation type or industry group, this study gathered information from interviews with practitioners of, and experts in, the relevant occupations. Through the analysis of occupational paths in 20 core occupations, it was possible to verify that a significant level of exchange was possible where certain occupations were not mutually exclusive of other occupations within the same business category.

Policy Recommendations

Based on the analysis presented in this study, nine policy recommendations were made. These were 1) the active introduction of a customized education process, 2) the joint use of electronic industry-related equipment and instruments, 3) the implementation of fused curriculum in university education, 4) the active use of a certification system for engineering education, 5) the discovery and support of abilities within a company, 6) reform of the national technical qualifications regime of the electronics industry, 7) the active use of career development internship programs, 8) the introduction of major track systems for tertiary science and technology students and, 9) the creation of a database for occupations related to the electronics industry, and the supplementation of the classification system for occupations.

IV. Vocational Education & Training

IV. Vocational Education & Training

The Structure and Characteristics of Vocational Training Market(I): Analysis of the Financing of Vocational Training in Korea

Won-ho Chung · Yeo-in Yoon

This study aims to analyze the financing of vocational training in Korea. This study focuses on grasping the equity of the vocational training market by studying how financial resources for vocational training are distributed with consideration for various factors such as industrial sector, firm size, region and characteristics of workers. This study will also focus on the effects of investment in vocational training on increases in productivity, employment and wage.

The structure of the distribution of vocational training financing

According to the analysis of the data on vocational training in 2004, the following results were observed. By industrial sector, manufacturing, electricity, gas, water supply, financial, real estate, insurance, transport, storage, and communication sectors received relatively high financial support for vocational training considering the weight of financial support, number of businesses, number of employment insurance policy holders, and the amount of employment insurance premium paid. In terms of firm size, larger firms tended to receive more financial support for vocational training, especially firms with more than 1,000 workers.

By region, Seoul received far more support compared to other regions, and Gyeonggi Province also received high financial support. Therefore financial support was concentrated on the capital region. This is partly because a high number of firms are located in the capital region, but data shows that this region received relatively high support for employer training and employee training compared to the number of firms and number of policy holders. However, the capital region received a considerably low level of support for unemployment training considering the number of unemployed in the region. The Jeju and Gangwon regions were least supported in all areas of vocational training.

In terms of employee characteristics, male workers received more support for vocational training than female workers. However, taking into account the number of policy holders, male workers received too little support. By age, most support was given to workers in their twenties and thirties, and this age group received excessive support considering the number of policy holders. By education level, high school graduates and university graduates received the most support. Taking into account the number of policy holders, however, those with less than high school

Key words

Vocational training market, Financial support, Productivity, Employment, Wage

degrees were under-supported while those with higher education levels received excessive support. In the case of vocational training for the unemployed, males received more support than females in total amount, but the former was less supported than the latter when taking into account their proportion among the unemployed population. By age group, most support was given to those in their twenties and the thirties, which has a high proportion of unemployed people. By education level, high school graduates were most supported, which corresponded to their proportion in the total unemployed population.

The policy implications of the above analysis are as follows: First, in order to cope with the imbalance between industrial sectors, a strategy to promote joint vocational training at the industry level is necessary. By promoting vocational training at the industry level, firms in industries with weak vocational training can collectively seek solutions for the problem and ultimately stimulate vocational training in the industry. Of the ten Sectoral Human Resources Development Councils (SHRDC) in operation, nine of them belong to manufacturing industries with the exception of that of the e-biz industry. Therefore the Ministry of Commerce, Industry and Energy and the Ministry of Labor which support the SHRDCs should make an effort to aid the establishment of SHRDCs in other industrial sectors with weak vocational training.

Second, support for vocational training is overly concentrated among large firms. To solve the issue of inequity, vocational training policy should focus more on supporting vocational training in small- and medium-sized enterprises (SMEs) with inferior facility, equipment and manpower. For example, invigorating vocational training consortium projects of SMEs and training programs for SME CEOs and vocational training personnel will serve to stimulate vocational training in SMEs.

Third, in order to reduce inequity in distribution of vocational training support among regions, more autonomy and rights in vocational training policy and more financial support should be given to each region. And that way, the interest of regional stakeholders could be reflected more accurately, which will in turn stimulate vocational training in regions outside of the capital area.

Lastly, in order to fairly distribute vocational training support to everyone, it is important to assess the training needs of workers and develop suitable training programs. It is especially important to develop training programmes for people aged forty and above, and for those with low education levels.

Effects and Implications of Vocational Training Financing

This study evaluated the effectiveness of vocational training in terms of productivity, employment and wage. Internal data of various firms were used to analyze the effects of vocational training expenses on productivity, and the effects of employment and wage were analyzed by utilizing data from the HRD-Net and Employment Insurance database.

The results of this study indicate that vocational training expense has weak positive effects on productivity, significantly positive effects on employment, and statistically no positive effect on wage.

The above results also imply that vocational training market may be

malfunctioning in some parts. That is, higher vocational training expense does not result in higher wage. It may be related to the fact that there are industries in which wage is not affected by labor supply and demand. An example is 3D industries, where wages are substantially low in spite of their labor shortage. This is why government should make an active intervention in vocational training.

The results also imply that we need to investigate more carefully the effects of vocational training on skills. As mentioned above, vocational training has a weak positive effect on productivity, which is insufficient to motivate firms to invest in vocational training. Vocational training expense does not have a positive effect on wage, which may be implying that public vocational training is not positively appraised by the market.

Lastly, the need for public vocational training is increasing as the labor market becomes more flexible. More vocational training needs to be provided especially to people in their 20's and 50's, the low-educated, and the high-educated with low skill-job match. Since there is high social demand for vocational training for them and it has positive effects on both employment and wage, providing public vocational training could bring positive social effects.

The Structure and Characteristics of Vocational Training Market(Ⅱ): Analysis of Vocational Training Courses and Institutes in Korea

Young-hoon Oh · Su-won Kim

Key words

Vocational institutes, On-the-job training, Off-the-job training, Evaluation standards, Training market

This research has been carried out as part of studies for defining the structure and characteristics of the Korean vocational training market, to clarify training supply structure and traits of the market by examining and analyzing vocational training courses and institutes in Korea. To this end, related statues, documents, statistical data, and raw data from HRD-Net were referred to and analyzed. Also, a questionnaire survey was conducted for working-level staffs of 832 vocational training institutes across the country. Main research results are as follows.

Current Status and Operation of Vocational Training Institutes and Courses

There are two types of vocational training institutes - public and private. As of December 2004, the total number of vocational training institutes in Korea stood at 3,606, with a vast majority of them being private(3, 516) and just 90 of them were public. A closer look reveals that the number of small-sized private training institutes for vocational competency development or lifelong education, and other private facilities (e.g., Hakwon) has been increasing annually. But the number of large-scale training institutes, being closely linked to industrial fields, is on decline. Overall, there are more small-scale training institutes set up than before.

Vocational training courses can be categorized into different types largely based on their goals and methods. Based on goals, training courses can be divided into basic training or advancement courses and job-change training. In terms of methods, training can be categorized as off-job (institutional), on-the-job or communication courses. Alternatively, training can be classified based on different groups of trainees such as the unemployed persons, employed persons and those hoping to obtain technical skills (respectively called training for the unemployed, employed persons and skilled workers). At present, 98.8 percent of training for the unemployed are non-customized courses. However, given that many of them failed to get jobs after completing training courses, more customized training courses need to be introduced. In 2004, the three most common forms of training for the employed were off-job, internet and mail/media communication training in that order. Considering the working hours of trainees, communication training needs to be more encouraged as they are more convenient for workers in terms of location and cost. In addition, even though various training curriculums are currently available, it is also true that many of them include very similar or identical contents. This problem

needs to be addressed in the future as well.

Operation of Vocational Training Institutes

A survey shows that the rate of authorization for curriculums reached about 90 percent in the past three years. In particular, almost 100% of corporate training facility curriculums were granted during this period. This suggests the need for thorough review on standards and processes of course authorization. Corporate training facilities outpaced others in the rate of creating and closing curriculums, which reflects that they responded to changes and newly required skills in the workplace more actively.

Overall trainee registration rates increased in the last three 3 years. But training course completion rates varied among courses. For instance, 90 percent of trainees of in-house training courses received a certificate for achievement while the completion rate of unemployed course trainees was less than 80 percent. In particular, the rates were declining steadily in the case of training courses for skilled workers. Rates of obtaining qualification certificates also differed depending on courses. Overall, private training institutes had higher rates of getting certificates than public ones, and their trainees were also more successful in finding jobs upon completion. The fact that private training institutes had higher rates of achieving qualification certificates and finding jobs indicates that they are more competitive than public training institutes. In fact, it is widely considered that private institutes are most competitive in the vocational training market. The survey results suggest, given that there were no operational differences in public and private institutes, public training institutes should come up with proper measures to increase their own competitiveness.

Information Source for Vocational Training Institute Operations

Training institutes relied on their own experience and survey results as a main information source determining institute operations including creating or closing curriculums. The utilization rate of information from professional research centers or government industrial/economic outlook data was relatively low. The training institutes were utilizing information on vocational training, related statistical data and policy materials published by the government more actively than information generated by national or private research centers. The outcome of the survey raises such concerns as: how reliable is the information (from national and private research centers) to be used in the operations of training institutes?; how effectively is the information being disseminated to training institutes?; and how easily is the information accessed? National and private research centers should focus their efforts to producing information of high quality and reliability, promoting its utilization and increasing the accessibility of information.

Competing Structure and Outlook for Vocational Training Market

While competition between training institutes proved to be relatively intense in the Korean market, the degree of fairness was recognized as being at a medium level. The authorization process of training curriculums was mentioned as being

most unfair, which is an unexpected result considering that the curriculum authorization rate stood at almost 90%. To receive authorization for training curriculums, institutes are required to meet some criteria, but it appears that they are dissatisfied with those criteria. Especially, private training institutes criticized unfair competition that prevails in designating training facilities. Most of them were unincorporated organizations.

Private training institutes and training institutes with high evaluation ratings had higher competitiveness. Corporate training facilities were regarded as least competitive, which is because they provide training to only their own people. Facilities/equipment and geographical accessibility were pointed out as less competitive than other factors. More specifically, half of public institutes mentioned geographical accessibility as their least competitive factor while private ones replied that poor facilities/equipment and low recognition were their weaknesses. On the other hand, being provided with government support, public institutes regarded good facilities/equipment as their merit. Private institutes pointed out training curriculums as their competitive advantage, which is significant in that they operate training courses in a more flexible way than public ones. The survey result suggests that public training institutes should make an effort to improve their educational methods and to operate training courses more flexibly. As for private institutes, the government needs to review the current support policy for them so that these institutes can be equipped with better facilities/equipment.

It turned out that training institutes given an evaluation rating of "A" or "B" in 2003 had different results in 2004, with a noticeable difference between public and private ones. That is, 90.9 percent of public training institutes given "A" ratings in 2003 received the same rating in 2004. But, in the case of private ones, less than half of those institutes that had received "A" ratings in 2003 attained the same rating in 2004. The downward tendency was also shown among institutes given "B" ratings in 2003 - 40.5 percent of those institutes were given "C" ratings or lower in 2004. The above results suggest two things: private training institutes have less stable operation conditions than public ones; and it is necessary to review the fairness and appropriateness of the current evaluation standards. Evaluation standards act as a very important index not only for institute operations but for protecting students' accomplishments and right to learn. Therefore, differentiated evaluation standards should be adopted for various types of training institutes so as to maximize the strength and effectiveness of individual institutes.

The survey shows that evaluation results affect institute operations to some degree. The results had more impact on trainee management, curriculum improvement, education programs for instructors and staff and trainee employment support than such factors as trainee recruitment (registration) and institutes' total sales. As mentioned above, the biggest problem for private institutes was poor facilities/equipment due to lack of investment. The reason that most private training institutes do not utilize the current facilities/equipment support program is due to its strict conditions. Therefore, the current support program should be improved in a way to better reflect and meet the need of private institutes.

When asked about plans to change training curriculums, most institutes replied that they would create new training courses to reflect industry needs. And as for the question of whether they would continue running training institutes, 62 percent

of those surveyed responded 'Yes.' One out of ten private institutes said they wanted to shut down the business but failed to find other alternatives. Institutes given lower evaluation ratings tended to reply as above. Most of the institutes hoping to terminate their business were private ones. The reasons for wanting to close their business included excessive government regulations, overall decline in trainee numbers, and unfair competition structure. It is implied that external reasons pose a greater burden on them than that created by their capacity.

The market expects the demand for vocational training to increase with the exception of off-the-job training. Relatively many institutes also expected that the demand for consortium training for small and medium companies would decrease. This is because these two types of training are conducted off-the-job despite some differences in their operations. But others are also predicting that the consortium training will increase in demand because more emphasis is being placed on employee training in small and medium enterprises.

The biggest barriers when investing in vocational training include uncertainty of a future training market, excessive government regulations, and difficulties in making profit from low-priced training fees. However, the survey results indicate that there is a limitation in using information provided by training institutes based on their own experience and surveys. Therefore, the institutes should be encouraged to make more active use of information from the government or related professional research centers. Finally, the issues of excessive government regulations and low training fees raised by the majority of training institutes need to be dealt with in consideration of the prevailing situations and be used as a future-oriented indicator.

The Structure and Characteristics of Vocational Training Market(III): The Delivery and Consumption of Vocational Training in Korea

Hong-Geun Chang · Yeo-In Yoon

Key words

Vocational training,
Vocational training
market, Training
delivery system,
Employment

This research has been done as a part of studies on the Korean vocational training market with the aim of clarifying the structure and characteristics of training delivery system and training experience. To this end, we made reference to and analyzed various documents and related statutes, and carried out a nationwide survey on vocational training participation and demand. We surveyed 9,570 people aged over 18 years old from 5,000 households. The main results are as follows.

Vocational training patterns and delivery system

Vocational training is provided and received in different ways according to training participants (trainees), training providers and financial resources.

By training subject, incumbent workers accounted for 86.4% of all training participants and the unemployed persons accounted for 13.6%.

With respect to the source of financial resources, companies supported 30.9% of all training participants, while government supported 36.1% (the incumbent, 32.3%, the unemployed, 3.8%), and 23.2% (the incumbent, 15.4%; the unemployed, 7.8%) of training participants paid for training themselves.

Vocational training service is different from general services and goods in that it is delivered to workers, who are ultimately the end-users with the demand to access training from training providers through the intermediary of government or companies.

In Korea vocational training is delivered in the following ways.

First, companies provide training courses to workers using its own training establishment, that is, in-house workers' training.

Second, companies entrust workers' training to external education & training institutions (public or private agencies), and pay for the training provided.

Third, companies entrust workers' training to external training facilities through public employment insurance fund, that is, incumbent workers' training is financed with employment insurance.

Fourth, incumbent workers undertake training with their own means without receiving assistance from companies or government and they choose training agencies or courses independently. That is, workers access training on their own.

Fifth, it is a type of training supported by government budget or Employment Insurance Fund, and provided to the unemployed at private or public training facilities. That is, training of the unemployed supported by government for

employment or reemployment.

Sixth, the unemployed pays for their own training and chooses training agencies and courses without governmental interference or control. This is training of the unemployed on their own.

Accessing vocational training

According to our survey, the vocational training participation rate for the past one year was 10.5%, the average number of training courses undertaken was 1.29, and the average number of training days was 41.4.

The major types of training included further training, training for business establishment or employment, and training for qualification acquisition. By training field, agriculture related training and a technology/job skill, management/banking/office work, beauty/dressmaking/ cooking/business establishment, computer technology, foreign language training were highly popular.

By training level, more than half the people surveyed participated in low level training and in the form of collective training. Training took place as OJT and at company-affiliated organizations, academies, and other institutions etc. Training completion rate was very high at 92.0%. The degree of satisfaction with vocational training outcome was found to be 'fair' or 'good'(3.5 point on a 5-point scale).

But the manner of accessing vocational training differed depending on the participants' position in the labor market. As for regular workers, the main motives for training were job skill development and career management. The main training fields were technology/job related and administration/banking/office management. Collective training, OJT, and e-learning were the main training methods. Also, the companies were found to provide a lot of OJT, training at company-affiliated training facilities, and support training expenses.

Therefore, workers were more concerned with the fields or contents of training courses rather than with the training fees when they were selecting training courses.

Since the training period of regular employees was relatively short and the training courses were systematically managed by the companies, the training completion rate for regular workers was very high and the level of satisfaction with training outcome was also high.

But, as for irregular workers, the main motives for accessing training included employment or business establishment, occupational conversion, and acquisition of qualifications. The training participation rate for irregular workers was low but the training period averaged around 2 months.

Irregular workers had a comparatively long training period and most of them were trained at private academies at their own expense.

Hence the drop-out rate among irregular workers during training was relatively high and the degree of satisfaction with training accomplishment was comparatively low.

As for the unemployed, the training participation rate was low, but the manner of accessing of training was highly similar to that of irregular workers.

The self-employed and unpaid family workers mostly took agriculture-related education/training. The agriculture-related education/training was short and

government financially supported those courses, so the training completion rate and participants' satisfaction level with training were comparatively high.

Demand of vocational training

Our survey results on intention of participating in vocational training are as follows.

26.3% of respondents answered that they have intention of participating in vocational training for job skill development and future usefulness, employment, etc. Demand structure of training differs by employment form.

To the unemployed with training participation intention, the consideration for future employment success after training is highly important when selecting training courses. Training cost is another major consideration, since they have no income.

However regular employees with a stable job and regular income tend to participate in training mainly for skill development or future usefulness. So, their main consideration is given to the area of specialization and the contents of training courses when selecting training courses.

On the other hand, irregular workers in unstable labor conditions are mainly driven to participate in training for employment or reemployment, future usefulness, and change of training job.

Therefore they are much concerned about the field of specialization and employment prospects of training courses in selecting training courses. However, given their low income and unstable employment status, those workers are less inclined to take part in training, especially without receiving training subsidy.

Discussions and Suggestions

Our research revealed that there are significant differences in training accessibility by company size and employment status. Though training participation rate for regular workers in large company was 26.8%, the respective figure for irregular workers stood at just 5.0% and the unemployed people's participation rate was even lower at 4.8%. Regular workers in SMEs showed a training participation rate of 12.9%. The overall training participation rate was 10.5%.

More than half of latent training demand was not being fulfilled. Whereas 26.3% of respondents wanted to participate in vocational training, only 10.5% of the questioned got involved in training. It appears that the main barriers to training are the financial burden to obtain training and the difficulty of finding time for training. To overcome these problems, it is necessary for the government to provide more active support for the training offered to the marginal groups, including the unemployed, the workers in SMEs, and various types of irregular workers.

On the one hand, the government needs to provide financial support in the form of training subsidies and training allowance, for instance, while designing measures to secure training time for those who unable to participate in training due to lack of time.

'Job rotation for training' system, used in northern European countries such as Denmark and Sweden could be referred to as a benchmarking example.

People wanting to receive training wishes for more or less high level training through various training methods at professional training agencies, but actual training provided does not satisfy those desires.

Thus, it is necessary for training providers to enhance the quality of training and develop effective training methods to better meet workers' expectations and needs. And the government needs to encourage universities, vocational colleges, and public vocational training agencies to take a more active part in the training market as providers of vocational training.

Many people seem to feel there is a lack of information on vocational training and custom-tailored training programs. As for training information, it is necessary to activate the vocational training information system(HRD-Net) and to make use of public employment service as centers of vocational training information and consultation. Also, the government should make greater efforts in disseminating the training information network. To solve the problem of training program insufficiency, support for training curriculum development needs to be strengthened.

Finally, this research found that the degree of satisfaction with previous training exerts considerable influence on training participation intention. Therefore the trainees or potential trainees should be actively encouraged to make choices on training programs.

If the training market is transformed into a more demand-oriented structure, the customers' satisfaction is likely to increase, which will increase the demand for training. These processes could then create a virtuous circle of vocational training.

Consolidation Measures of Industry-Academia Cooperation for Human Resources Development of the Vocational Education Institutes

Ji-sun Chung · Soo-won Kim

Key words

Industry-academia cooperation, Innovative economy, Regional Sectors, Clusters, Sector Councils

Government, industry and colleges have insufficient understanding of the meaning of and strategy for industry-academia cooperation, which is essential in building an innovative economy and searching for substantive public policies and practices. They also do not have a proper grasp of the overall situation, performance and problems of the cooperative relationship between them.

This research is aimed at shedding some light on which direction should vocational education institutions, including junior colleges, polytechnics and vocational high schools, take in establishing industry-academia cooperation system in developing human resources as a major step toward becoming an innovative economy. It also intends to develop models for reinforcing mutual relations and collaboration between the three parties leading innovation, and to draw up schemes for promoting cooperation of them.

Industry-academia cooperation refers to cooperative activities between academic bodies, government, municipal government, government-sponsored institutes and industries, including developing manpower customized to meet the demands of industries and future industrial development, R&D for creating and expanding new knowledge technology, technology transfer to industrial sectors, and industrial consulting. It is not a purpose itself but a way to facilitate research and technology development, and produce competent human resources.

For the construction of an innovative economy, it is necessary to procure and utilize human resources from regional sectors, which form the foundation of social and knowledge capital clusters. For effective cooperation to take place, it is also necessary to be equipped with useful hardware (e.g. institution, law, finance, and facility), human ware (e.g. professionals, organization and leadership), software (e.g. industry-academia cooperation programs), and mind ware (e.g. cognizance and will of participation). Central and local governments should guide the way for developing human and knowledge capital in colleges and industries, and by supporting law, administration, and finance to them, show long- and mid-term programs overlooking the supply and demand of human and knowledge capital.

Although all legislative regulations related to industry-academia cooperation have provisions for the establishment of various types of committees and deliberative councils, they do not account for organizational compositions which include each ministry and office for cooperation. Therefore, it is necessary to prepare policies to promote cooperation and develop measures which would centralize the role of committees and deliberative councils responsible for those measures.

Case Studies of Industry–academia Cooperation

In Australia, vocational education and training systems usually focus on the industry body. It weighs on the development of national-standard vocational educations by requiring proper training, and on leading industry-academia cooperation. Cooperative programs in Australia make full use of the part time system. It establishes warrant-committees for higher education, and evaluates the operation of universities, since the federal government's educational policies are focused on the excellence of the quality of universities. It also constructs the industry-academia cooperation system suitable for local communities, activating a range of research centers.

In Korea, Doowon Technical College (DTC) is trying to build Gyeonggi IT-LCD cluster as part of industry-academia cooperation, guaranteeing the influx of labor force and knowledge from IT-LCD clusters in Paju, Suwon and Pyeongtaek areas through contract with the Gyeonggi Province for the training of technological and functional manpower.

DTC signed an industry-academia cooperation contract with LPL in September 2004, and received one billion won in 2005. And the college is supposed to get 10 billion won over three years through an industry-academia-government technology & function training plan of the Gyeonggi provincial committee. In February 2005, it also developed custom-made educational courses about four duties on the maintenance-repair manpower for equipment through joint DACUM between LPL and Doowon. And under the agreement of military authorities, DTC finally purchased a site (Paju, Bongamli) for Paju campus, offering display-related majors (500 persons), vocational training courses (500 persons), and professional college graduate courses (760 persons). In general, DTC promoted 5 major detailed projects to grow into a leading college, supplying Gyeonggi IT-LCD cluster with technological-functional manpower.

Now, DTC is making efforts to build industry-academy-research networks centered on the participation of learners. And it also plans to pursue mutual profits from LCD cluster, Gyeonggi Province, industrial high schools, and DTC. For this, DTC makes a detailed program to develop and research commercialization technology through LCD-related consortium in mechanic, electric, and electronic engineering fields. DTC also provides production-contact technology guidance, the rationalization of management & quality management, interpretation & translation, information-oriented IT, and bottleneck-technology guidance for small and medium enterprises such as a design supporting. To cope with the industrial structure that is becoming more advanced, DTC develops joint educational courses with LCD cluster and offers various educational programs to cultivate human resources.

Industry–academia Cooperation Innovation Plans of Vocational Education Institutes

Industry-academia cooperation should not be directed only at strengthening the abilities of educational institutions. It is an industrial body that plays a key role in the whole cooperation system. So, industry-academia cooperation should be of

much service to the industrial world. Government also should try to establish institutions and social systems for colleges and enterprises, in which they can exchange essential information without difficulty and satisfy each other's needs. Finally, it requires that local autonomous entities to also actively participate. At the local level, they should function as regulators, facilitators and investors like every ministry and office of the central government. At the end, industry-academia cooperation will contribute to the balanced development of regional areas and ultimately enhance Korea's international competitiveness.

The improvement plans for vocational education institutes include: the development of industry-academia cooperation strategies and road maps suited to the attributes of individual institutes, the foundation of practical business-centered education systems, the promotion of various forms of cooperation, the endowment of incentives for participants, the expansion of supporting professionals, infrastructure and finance necessary for cooperation, the reinforcement of ethics and cooperation in fields other than education, and the establishment of general organizations for industry-academia cooperation among industrial high schools.

Next, the improvement plans for industrial bodies involve the promotion of employers' recognition of the importance of industry-academia cooperation, the consolidation of human and financial support for vocational education institutes, the construction and activation of sector councils, and the initiative of forums for cooperation.

Last, the improvement plans for governments cover: the development of the national level of cooperation strategies and road maps, the arrangement of adjustment systems for cooperation projects and policies, the establishment of policy supporting structures, the expansion of comprehensive information systems for industry-academia cooperation, the preparation of manual and information for cooperation, the reorganization of administrative and financial supporting systems for localized cooperation, the reform of laws and institutions, the modulation of incentives for schools and industries, the expansion of financial supports, and the formation of social supporting systems to promote employment.

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