ENHANCING EMPLOYABILITY SKILL THROUGH COMPUTER EDUCATION-A STUDY OF INFORMATION SYSTEM PROGRAM IN TAIWAN

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Abstract ¾ The rapid advance of technology, particularly the use of computers and information technology, has increased world competition and expanded economic ties. The concentration on the production of electronic products and e-business has led to an increased demand for workers who possess updated skills. This paper reports an innovative, comprehensive, educational and training program designed for computer education at Tze-Chiang Foundation of Science & Technology in Taiwan, Republic of China. The mission of program is to establish an employability skill to provide the trainees whose majors are not computer science, and to support the human resources for the information technology. In this paper, the objective, curriculums, evaluation, and benefits of this program will be addressed. Based upon the economic benefits estimated in this study, it is found that this training model fits Taiwan's environment well and can assist Taiwan's information technology industry become more competitive in the world market. The program itself could also become an exemplary model for other developing countries in the future.

Index Terms — Employment, computer education, and information system program

OBJECTIVE

The Tze-Chiang Foundation of Science And Technology (TCFST), a non-profit organization, was founded in 1973 by alumni of National Tsing Hua University and has been actively enhancing the training program and learning environment of the industry. The goal of TCFST is to become the best high-tech training center in the Asia Pacific, the TCFST's training philosophy is that there is dignity in work and value in personal growth and learning. TCFST believes that people should be given an opportunity to develop their talents, acquire skills needed to handle a job and become successful and contributing member of the country. Learning through field practice is a primary focus of TCFST's instruction.
The mission is to:

1. Retrain existing employees so as to meet the requirement of increasing job opportunities and demand.
2. Provide guidance and counseling the industry.
3. Emphasize on knowledge learning and skill development.
4. Establish the manpower of high-techs industry in Taiwan and to be competitive in the world.

To accomplish it's mission, the TCFST develops connections among academic, research, indusial and governmental institutions in order to promote economic growth, upgrade industry, and social sciences as well as speed up the modernization of industrial and business management. The TCFST is thus devoted to cooperative research and professional training programs by utilizing academic expertise and facilities as well as obtaining the support of the government by providing high-quality training programs. TCFST has earned an excellent reputation in the area of professional training.

THE TRAINING PROGRAM

The Information System Program at TCFST provides quality vocational preparation and skills development that meets the needs of trainees who aspire to become Information Systems professionals. The objective of the program is to level the shortage of manpower in the industry. Therefore, The government funding from the Employment and Vocational Training Administration of the Council of Labor Affairs provides the sixty seven percent of the budget of the program. The trainees will pay the other twenty five percent of program fee.

The entry requirement is that the trainees must be graduated from the college or university with non-computer science major and are now unemployed. In addition, the trainees are interviewed and admitted to the program according to their curriculum vitae, the performance in question and answer, and the record in tests including basic computer knowledge and English. With the well-established background information of the admitted trainees, the program could offer more appropriate course to meet the specific needs of the trainees.

The training program is divided into several components including Software Systems Development, Web Development & Programming, Database Management System, and E-Commerce and Marketing. The program are conducted by expert engineers with extensive practical and

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1

theoretical experience sessions are composed 55% lecture and 45% lab practice and demonstration sessions. The program is 600 hours in duration, consists of full-time study, and takes place every 30 hours per week during daytime. Throughout the program trainees are encouraged to pursue the development of their own ideas, and many become quite creative. The program concludes with a 90 hours intensive project. Trainees are put into research, design and production teams. Project reflect real work demands in terms of the end product. The trainees gain industrial experience by producing tangible results.

At the conclusion of the program, the trainees not only understand the principles and concepts underlying computer studies, but also have practical experience in all phases of computing. Integrated into the technical aspects of the program, moreover, are the development of communication skills, interpersonal skills, and problem solving skills.

EVALUATION

A measurement team made up of personnel from TCFST was formed. To ensure that the program was conducted in a timely fashion, the measurement team collected performance data from the program. It used the following methods to collect the data:
1. An end-of-class survey administered at the end of the courses.
2. Test results, administered prior to the courses and again after the courses.
3. Follow-up survey, an interview administered three
4. months after training for their employment rate. (Figure 1).

The end-of-class evaluations reported reactions to the program, which were overwhelmingly positive. Most respondents agreed that the content was relevant to their work. On a five-point scale that ranged from poor to excellent, the program received overall ratings of excellent by 85 percent of trainees. On a learning level of evaluation, trainee's self-assessments showed an average overall gain of 70 percent between pre-and postlearning objective. In additions, learning was evidence by trainees' successful completion of the area trainer qualification, with 90 percent accuracy, following the program. As depicted in figure 1, the follow-up survey showed that employment rate of the trainees ranged from 70% to 60%.

CONCLUSION

Globalization and industrial growth have created competitive demands for new products. The challenge that one faces today is to provide a training program that will equip the workers with the necessary skills to meet future development.

The benefits to industry are enterprises can hire personnel with second-expertise training to smooth the interface of manpower transfer. This effort will virtually

prevent problems incurred by mounting unemployment amidst the rapid economic transformation.

The trainee's benefit through upgraded theoretical and practical skills, which lead to, increased value in job market and expanded opportunities for employment. They complete the program with the capability to work as analysts or programmers, and many have gone on to assume important roles in the information technology field.

People who know how to use a tool well can often produce the greatest effect of the tool. Similarly, people with inventive abilities will be able to derive the best result when applying technological skills. The main content of information technology training is industrial technology. Yet, if the objective of developing inventive power is included in an information system program, it will yield consideration results for the program.
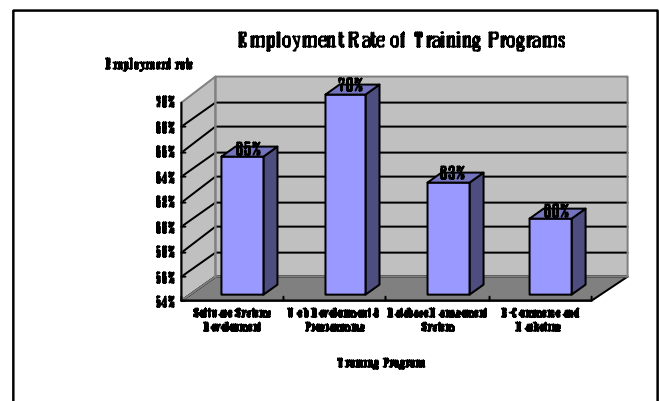

FIGURE. I
Employment Rate of Training Programs

REFERENCES

[1] "Integrated Circuit (IC) fabrication Semiconductor Technology Training Program", *Exemplary Training Models in Industrial Technology,* compiled and edited by Hatton, Michael J., Associations of Canadian Community colleges, 1995, pp.73-76
[2] Employment and Vocational Training Administration website at http://www.evta.gov.tw